SDLC Manual

Version 3.1

Office of the Comptroller of the Currency

Document History

Version	Primary Author	Version Description	File Location	Date
3.1.0.1	SDLC Program Office	Draft version of SDLC 3.1 for OCC review	SDLC Program Office internal SharePoint site	9/8/08

Table of Contents

APPENDIX

Tailoring Documentation

Tailoring Profile Calculation Worksheet
Tailoring Plan
Tailoring Report
Tailoring Request for Deviation

Technical Reviews

Requirements Review
Requirements Review Report
Critical Design Review
Critical Design Review Report
Release Readiness Review
Release Readiness Review Report

Deliverables

Deliverable Review Report
Project Management Plan
Project Management Plan Checklist
Configuration Management Plan
Configuration Management Plan Checklist
Quality Assurance Plan
Quality Assurance Plan Checklist
Requirements Document
Requirements Document Checklist
Interface Control Document
Interface Control Document Checklist
Design Document
Design Document Checklist
System Conversion Plan
System Conversion Plan Checklist
Training Plan
Training Plan Checklist
Version Description Document
Version Description Document Checklist
Implementation Plan
Implementation Plan Checklist
Operations and Maintenance Manual
Operations and Maintenance Manual Checklist
User Manual
User Manual Checklist
Disposition Plan
Disposition Plan Checklist

Introduction

Executive Summary

The Systems Development Life Cycle (SDLC) Manual version 3.1 provides a formal, integrated, and streamlined approach to managing system development projects within the Office of the Comptroller of the Currency (OCC). This manual serves as a guidance tool, outlining OCC governance, policies, standards and procedures as they pertain to the SDLC. The SDLC emphasizes best practices and decision processes that enhance the effectiveness of system development projects and the systems delivered by Information Technology Services (ITS).

The SDLC Process is comprised of an introductory SDLC Tailoring sub-process followed by eight distinct life cycle phases:

1. Planning Phase
2. Requirements Definition Phase
3. Design Phase
4. Development Phase
5. Test Phase
6. Implementation Phase
7. Operations and Maintenance Phase
8. Disposition Phase

SDLC version 3.1 incorporates strong control mechanisms and reference tools at key decision points in the SDLC Process, including:

- Deliverables representing key technical documents
- Formal deliverable reviews and approvals
- Formal technical reviews and approvals
- Defined phase entry and exit criteria

This progression ensures that sound decisions are made during the systems development lifecycle process to result in the creation of effective information technology (IT) systems.

Scope

The SDLC process is suitable for all IT environments, with applicability to both contractually developed and internally developed systems within OCC. Additionally, SDLC applies to both new projects as well as major modifications to existing systems in operation. SDLC Tailoring offers systems development project managers the capability to modify the SDLC process to accommodate specific

project needs. Before proceeding with the development of a new system, proper approval must be received from the project sponsor or the Investment Review Board (IRB) before the SDLC process can begin.

Authority

OCC's SDLC is governed by several statutes that focus on improving the efficiency and effectiveness of federal agencies by regulating their operational and management practices. These laws include:

- The Federal Records Act of 1950 (FRA)
- The Freedom of Information Act of 1966 (FOIA)
- The Privacy Act of 1974 (PA)
- The Financial Officer Act of 1990 (CFOA)
- The Government Performance and Results Act of 1993 (GPRA)
- The Federal Acquisition Streamlining Act of 1994 (FASA)
- The Paperwork Reduction Act of 1995 (PRA)
- The Clinger-Cohen Act of 1996 (CCA)
- The Government Paperwork Elimination Act of 1998 (GPEA)
- The Federal Information Security Management Act of 2002 (FISMA)
- The E-Government Act of 2002 (P.L. 107-347)

Background

OCC, like most federal organizations, finds itself increasingly reliant on IT as an effective tool to help meet customer needs and remain in compliance with federal e-Government legislative mandates. Due to the proliferation of IT usage and escalating costs within the federal government, the Office of Management and Budget (OMB) has called for increased accountability relative to planning and use of IT investments. The Capital Planning Investment Control (CPIC) process is OMB's mandate to federal agencies to ensure positive returns on IT investments. In response, OCC has established internal IT accountability standards by employing systems development methods such as the SDLC that introduce control mechanisms for development projects.

The OCC SDLC process was first developed in 2004, based on industry best practices and standards that enhance the effectiveness of system development projects. All system development projects initiated within the OCC since April 1, 2005 have been recommended to employ the SDLC. Since then, various revisions to the OCC SDLC process have enhanced formal oversight, governance, and change controls.

The release of v.3.1 represents a streamlined approach to the OCC SDLC process. ITS executives identified the streamlining of the SDLC process as a priority activity that will improve the efficiency of systems delivery activities at OCC. In producing v.3.1, the SDLC Program Office conducted a thorough analysis of existing

processes and worked closely with an SDLC Working Group - established to represent the collective interest and expertise of ITS - to prioritize and implement process improvements. The following objectives guided the SDLC streamlining effort:

- Streamline processes to improve efficiency and reduce potential time, resource, and cost burdens on project managers
- Remove redundant, conflicting, and erroneous information to improve the quality of process documentation
- Fill process gaps to ensure that all desired outcomes are accounted for
- Reduce volume of documentation to aid expert users
- Improve the clarity of procedures used throughout the process
- Improve the usability of forms, checklists, and deliverables aiding the process
- Align and document processes according to industry best practices and peer benchmarks

As a result of the SDLC streamlining effort, the SDLC Manual v.3.1 represents an improvement of existing content, rather than the creation of a new SDLC process. This is intended to enhance the ability of stakeholders to apply standard practices in order to efficiently manage system development projects to completion.

IT Governance, Policy, Standards, and Procedures

The OCC SDLC is a guideline. As defined by the IT Policies, Standards, & Procedures Framework, a guideline is a recommendation intended to facilitate the adoption and successful fulfillment of a specific policy, standard, or procedure. A guideline clarifies a course of action in order to achieve objectives set out in policy. To that end, the OCC SDLC is a recommended guideline to achieve the OCC's IT objectives while remaining in compliance with both internal and external policies, standards and procedures.

Although compliance with the OCC SDLC is not mandatory, all system development projects are subject to compliance reviews and audits, which assess system alignment with ITS objectives and the OCC governance, policies, standards and procedures.

SDLC Program Office

The SDLC Program Office, a division of the ITS Business Services Delivery organization, provides ongoing support to the agency with the objective of delivering high quality IT products and services to OCC's internal and external customers and stakeholders. The SDLC Program Office provides the enterprise framework necessary to establish and implement best practices and processes for the agency which will ensure that OCC's systems are developed securely, effectively, on time and within budget.

Specific functions of the SDLC Program Office include: supporting and managing the SDLC process, maintaining SDLC documentation, training stakeholders on SDLC-related activities and providing direct support to SDLC end users.

Complementary Program Areas

The SDLC process relies heavily on a number of standards, policies and procedures under the purview of other program offices, both within and outside of ITS. For an up-to-date inventory of these policies, standards, and procedures, please contact the offices directly (see listing below), or the Office of IT Governance, Policy and Procedures. Below is a brief description of each complementary program area:

Capital Planning Investment and Control Program (CPIC) Office:
The objective of the CPIC Program Office is to facilitate the decision-making process that ensures IT investments integrate strategic planning, budgeting, procurement, and IT management in support of the OCC's mission, goals, objectives and business needs. During the SDLC process, CPIC acts as a control gate through which system development projects must pass in order receive continued funding.

Data Management Services Program Office:
The objective of the Data Management Services Program Office is to establish and support enterprise data standards for quality, security, usability, availability, consistency and sharing capabilities. During the SDLC process, the Data Management Services Program Office ensures that the system is in compliance with data management standards and monitors data management-related activities.

Enterprise Architecture Program Office:
The objective of the Enterprise Architecture (EA) Program Office is to ensure that projects address the relationship between the IT investment and the business, performance, data, services, application, and technology layers of the agency's enterprise architecture. During the SDLC process, the EA Program Office ensures that the system design is in alignment with the agency's EA.

Enterprise Configuration Management Program Office:
The Enterprise Configuration Management Program Office (ECMPO) is primarily responsible for establishing and maintaining the integrity of work products, systems, and documentation through configuration management activities and controls. During the SDLC Process, ECMPO engages with projects in a series of configuration management activities such as configuration identification, configuration control, configuration status accounting, release management and configuration audits that ensure the creation of a sound IT system with minimal defects.

Information Security Office:

The objective of the Information Security Office (ISO) is to manage the amount of risk OCC information resources are exposed to by implementing managerial, operational and technical controls to protect information confidentiality, integrity and availability. During the SDLC Process, ISO ensures that all potential security risks to the IT investments have been considered in terms of data types, sensitivity, personnel information captured, private and sensitive information handling, required documentation, security team resource impacts, etc.

Quality Management Program Office:
The objective of the Quality Management (QM) Program Office is to provide the enterprise governance framework for quality management, independent verification and validation, and quality oversight of IT projects. During the SDLC process, QM supports various departmental quality management programs consisting of a set of pre-delivery quality controls, post-delivery quality assurance activities, and management practices intended to promote continuous business process improvement.

Records Management Program Office:
The objective of Records Management Program Office is to provide guidance that will ensure compliance with federal laws, regulations, policies, and procedures governing the way in which records are handled at OCC. During the SDLC process, the Records Management Program Office provides requirements and regulations related to the persistence, archiving, and destruction of data throughout the system development process.

Section 508 Program Office:
The objective of the Section 508 Program Office is to ensure the "accessibility" of IT investments to support individuals with disabilities as required by Federal Law, OCC Equal Employment Opportunity (EEO) policy and Strategic Goals. During the SDLC Process, the Section 508 Program Office ensures that the system being developed complies with Section 508 of the Rehabilitation Act Amendments of 1998, which requires Federal agencies to ensure that federal employees and members of the public with disabilities, such as hearing or vision impairment, have access to information, computers, and networks comparable to the access enjoyed by individuals without disabilities.

Technical Infrastructure Program Office:
The objective of the Technical Infrastructure (TI) Program Office is to provide hosting services, telecommunications services, and customer support to the OCC. During the SDLC process, TI delivers infrastructure hardware, software, services, and support based on project system requirements, workload projections, and customer support needs. TI operates, maintains, and secures the infrastructure throughout the life of a system and manages the refresh and disposal of infrastructure hardware and software.

OCC SDLC Process Overview

Key SDLC Principles

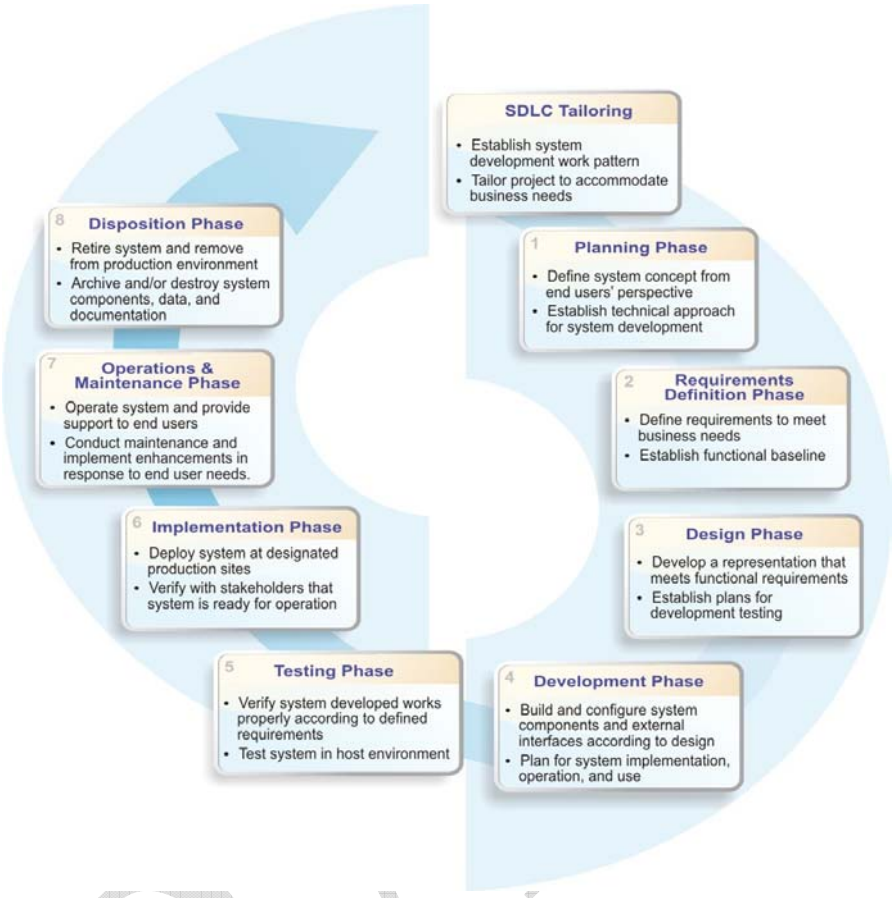
The OCC SDLC process is founded on the following key principles:

- Consistency with accepted industry best practices and standards
- A comprehensive technical Project Management Plan to track, measure, and control the progress of each system development project
- Accountability through work product and progress reviews at key decision points in the SDLC Process
- Clear, accurate, and thorough documentation of activity results and decisions throughout the SDLC Process
- Formal review, concurrence, and approval of all SDLC deliverables by stakeholders across the agency based on their predefined SDLC roles and responsibilities
- SDLC tailoring options for alternative system development project work patterns to ensure flexibility in responding quickly to meet immediate business needs.

SDLC Overview

The SDLC Process is comprised of an introductory SDLC Tailoring sub-process followed by eight distinct life cycle phases. High-level objectives of the phases are shown in the diagram below.

Figure 1: SDLC Phases and Phase Objectives



SDLC Deliverables

SDLC deliverables are technical artifacts that document the results of activities and decisions throughout the system development process. Deliverables may be initiated and completed in a single phase or may require regular updates throughout several phases of the project. They are referenced throughout the description of SDLC phases, in order to identify when the outcomes of technical activities should be documented. Seventeen deliverables are identified in SDLC v.3.1. Predefined templates for these deliverables are published together with SDLC guidance in the appendix of this manual. In a few instances, as noted, deliverable content is defined by complementary program areas. Templates for those deliverables are not published by the SDLC Program Office.

SDLC Reviews

Throughout the SDLC process, reviews are conducted as a quality assurance mechanism to effectively monitor both the technical aspects of system development and the documentation of the technical work. Two types of formal reviews – Technical Reviews and Deliverable Reviews – are discussed in greater detail below.

Technical Reviews

The SDLC Process includes three Technical Reviews. These are live reviews, with stakeholders gathered in person, placed at key decision points in the SDLC. Project artifacts are reviewed and progress is discussed in a format conducive to the exchange of technical ideas and the identification and reduction of risk. They also serve to ensure that all technical aspects of the system are traceable back to original project objectives and requirements.

Below is a brief description of the three Technical Reviews within the SDLC Process. These reviews are identified in the context of the SDLC process in the phase descriptions that follow. In addition, detailed procedures for each review are provided in the Appendix of this document:

- **Requirements Review** – This review occurs during the Requirements Definition Phase, and is conducted to verify that requirements are complete according to SDLC guidelines. Requirements are evaluated to ensure that they are necessary and sufficient, and that they adequately balance stakeholder needs and constraints.
- **Critical Design Review** – This review occurs during the Design Phase, and is conducted to formally evaluate the technical adequacy of the system architecture and design before formal development begins.
- **Release Readiness Review** – This review, also referred to as "Go or No Go," occurs during the Test Phase, and is meant to ensure that the system is ready for implementation. The review verifies that the system has passed all testing, implementation planning is adequate, and deployment risks are within an acceptable range.

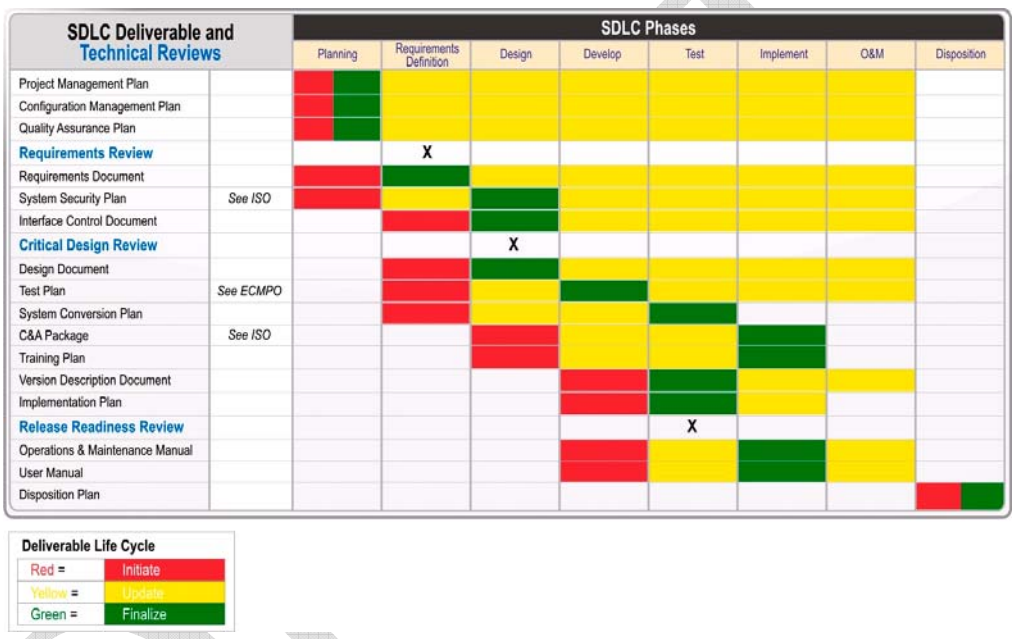
Deliverable Reviews

Once a deliverable is completed, it requires formal review, concurrence and approval from various technical stakeholders and subject matter experts (SMEs) in order to validate and verify its content. The Deliverable Review process by which deliverables are approved is governed by quality assurance procedures maintained by the QM Program Office. Please contact the QM Program Office for detailed guidance on how to conduct Deliverable Reviews. For SDLC process verification, a Deliverable Review Report template is provided in SDLC v.3.1, to be completed by the project manager at the conclusion of each Deliverable Review. In addition, a deliverable checklist for each deliverable is provided in SDLC v.3.1 to aid reviewers when evaluating technical documentation. The Deliverable Review Report template and deliverable checklists are provided in the Appendix of this document.

Timing of Deliverables and Reviews

Deliverables in the SDLC Process may be initiated and completed in a single phase or may require update and elaboration throughout several phases of the process. Once a deliverable has been completed, it should be finalized and approved by means of a formal Deliverable Review. Unlike deliverables, Technical Reviews are conducted and finalized within a single phase. Technical Reviews generally serve as phase gates to help project managers verify completeness of SDLC artifacts before proceeding into successive phases.

Figure 2: SDLC Deliverable and Technical Reviews by Phase

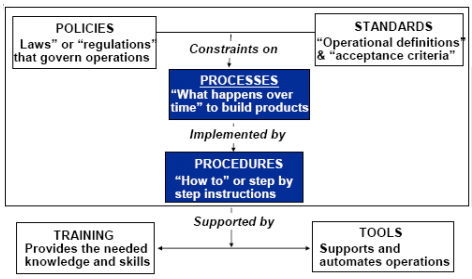


SDLC Document Structure

The SDLC process is presented in this manual using a process documentation framework that has been adapted from methods published by the Software Engineering Institute (SEI)[1]. This framework provides a structured pattern to effectively describe the process and procedure components of a business process. Eight critical process elements are covered in detail for the primary aspects of the SDLC process. The definitions of the critical process elements are shown in the figure below.

Figure 3: SDLC Critical Process Elements

[1] "Software Process Framework for the SEI Capability Maturity Model," CMU/SEI-94-HB-01.

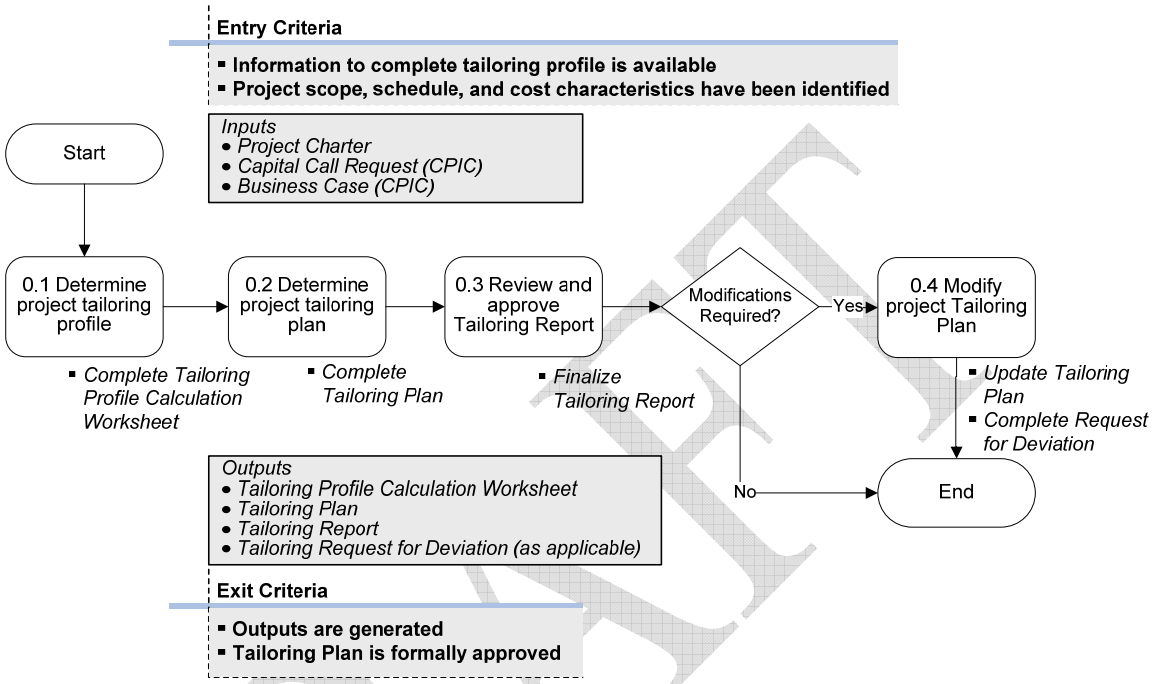


The Eight Critical Process Elements
Purpose – why the activity is performed
Activities – what actions are performed throughout the process
Roles – who performs process activities
Outputs – what work products are produced as a result of process activities
Entry Criteria – the conditions under which an activity can be started
Exit Criteria – the conditions under which an activity can be declared complete
Inputs – what work products are required to perform process activities
Procedures – describes "how-to" or step-by-step instructions that implement the process (e.g., forms, checklists, templates, etc.)

Note: Where applicable throughout SDLC guidance, references to processes and procedures in the domain of complementary program areas are provided.

Tailoring

The SDLC Tailoring process is conducted before the SDLC process formally begins. This activity determines the SDLC work pattern that the project will follow.



0.1 Purpose

Tailoring provides project stakeholders with a method by which to establish a system development work pattern corresponding to the business needs of the system development project, without compromising the intent or integrity of the SDLC process.

0.2 Entry Criteria

Before a development project may begin SDLC Tailoring, information required to complete project tailoring profile must be available, and project scope, schedule and cost characteristics must be identified.

0.3 Inputs

Inputs to Tailoring ensure that relevant information about the proposed system and project is available to determine what deliverables to produce and Technical Reviews to conduct. The following documents contain information that is instrumental to Tailoring activities:

- Project Charter
- Capital Call Request (see CPIC guidance)
- Business Case (see CPIC guidance)

0.4 Activities

This section provides detail on each activity in Tailoring, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

0.4.1. Determine project tailoring profile (WBS 0.1)

This step evaluates project characteristics such as development time and cost, mission criticality, and system security, among others, that become the basis for the recommended SDLC work pattern.

The ITS Project Manager (ITS PM) and Program Management Office Program Manager (PMO PM) collaborate to lead the following tasks:

- Review project initiation information including a project charter and any business plans that have been developed
- Establish contact with applicable technical SMEs from ITS to verify project scope and determine other considerations
- Determine tailoring profile
- Output – Tailoring Profile Calculation Worksheet

0.4.2. Determine project tailoring plan (WBS 0.2)

This step entails a detailed assessment of whether to include each potential deliverable and Technical Review identified in the recommended SDLC work pattern. For each deliverable or review selected, an additional determination is made about how it will be produced or conducted, respectively.

The ITS PM and PMO PM collaborate to lead the following tasks:

- Review Tailoring Profile Calculation Worksheet and compare with project cost, schedule, and resource constraints
- Consult technical SMEs as necessary to evaluate alternative tailoring approaches
- Determine and document tailoring plan
- Output – Tailoring Plan

0.4.3. Review and approve Tailoring Report (WBS 0.3)

In this step, the SDLC work pattern is evaluated by key stakeholders in order to establish concurrence about the deliverables and reviews that will be included in the project's SDLC.

The ITS PM and PMO PM collaborate to complete the following tasks:

- Schedule and conduct review of Tailoring artifacts
- Identify project assumptions, constraints, risks, etc.
- Update project planning information, as applicable
- Secure concurrence of SDLC Program Manager and Contracting Officer's Technical Representative (COTR) and approval of Business Manager or project sponsor, on the tailoring approach selected
- Output – Tailoring Report

0.4.4. Modify project tailoring plan (WBS 0.4)

Note: This step may be conducted at any stage during the system development life cycle. At any given time, due to unforeseen circumstances, the project tailoring plan may need to be modified. This activity is invoked as necessary to deviate from the original plan and adopt changes to the SDLC work pattern.

The ITS PM and PMO PM collaborate to complete the following tasks:

- Collect project planning or control information, as available
- Recalculate project tailoring profile, if necessary
- Revisit existing project Tailoring Plan and identify modifications
- Complete Tailoring Request for Deviation form to document changes to the Tailoring Plan
- Secure concurrence of SDLC Program Manager and COTR and approval of Business Manager or project sponsor, on the required deviation
- Output – Tailoring Request for Deviation

0.5 Roles

The following table identifies participants, as well as their responsibilities, for each Tailoring activity.

Table 1: Tailoring Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO*	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO*	DC & SO ADCIO*	Telecommunications Officer	Technical Support ADCIO*	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team	Records Management Program Office
Activities	Determine project tailoring profile	A	P																	
	Determine project SDLC tailoring plan	A	P																	
	Review and approve Tailoring Report	P	P	R	A										R					
	Modify project Tailoring Plan	P	P	R	A										R					

*** Assistant Deputy Chief Information Officer**

0.6 Outputs

A variety of outputs are generated during the Tailoring process. Details about the outputs are as follows:

0.6.1. Tailoring Profile Calculation Worksheet

The Tailoring Profile Calculation Worksheet helps to determine the tailoring profile of the project. The worksheet identifies the numerical weight assigned to specific tailoring factors associated with the characteristics of the project and offers guidance for the types of deliverables to be included based on project score.

0.6.2. Tailoring Plan

The Tailoring Plan is used to officially document the selected work pattern for the project and identifies which deliverables or Technical Reviews will be tailored out.

0.6.3. Tailoring Report

The Tailoring Report officially documents the final decision outlined in the Tailoring Plan – *Accept, Accept with Minor Rework, Do Not Accept* – with signatures of the Decision Makers.

0.6.4. Tailoring Request for Deviation

The Tailoring Request for Deviation document provides information regarding requested changes to the Tailoring Plan and officially documents the final tailoring decision – *Accept, Accept with Minor Rework, Do Not Accept* – with signatures of the Decision Makers.

0.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 0 is generated
- The tailoring plan is formally reviewed and approved, as documented in the Tailoring Report

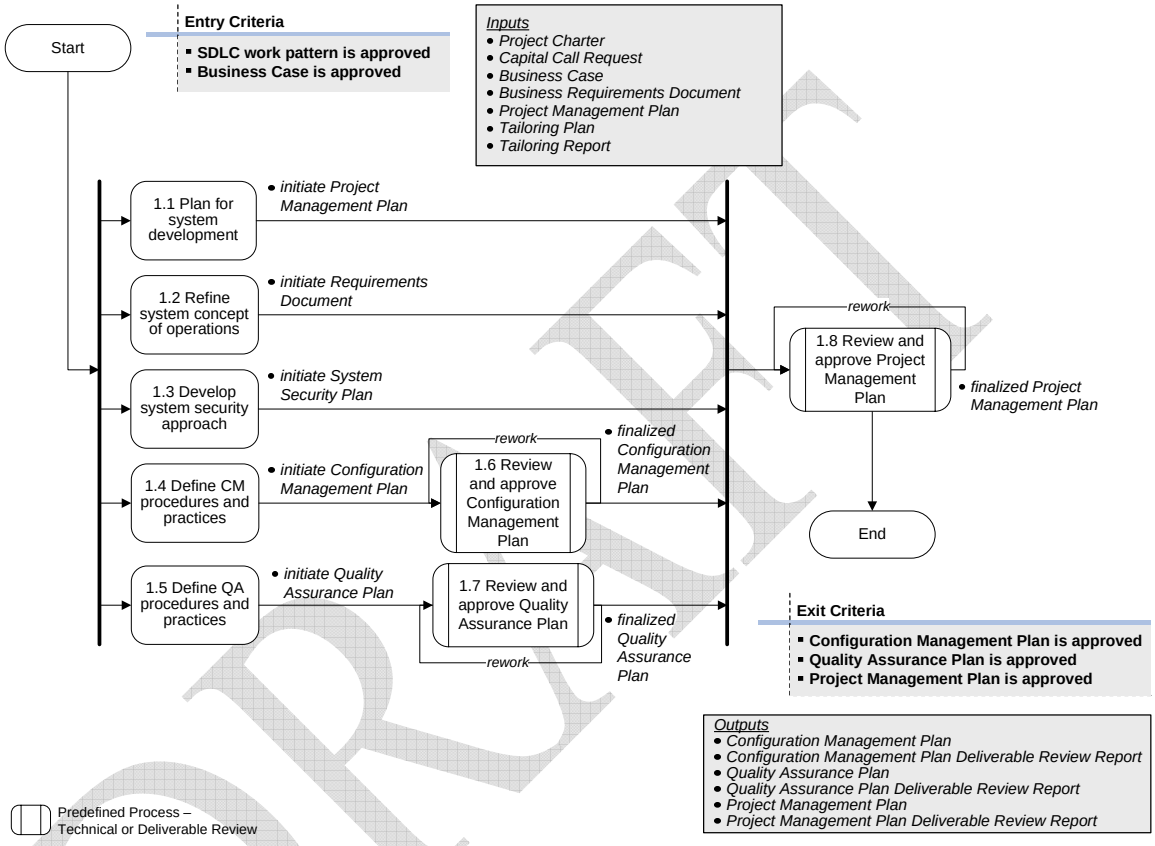
0.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- Tailoring Profile Calculation Worksheet
- Tailoring Plan
- Tailoring Report
- Tailoring Request For Deviation.

1 Planning Phase

The Planning Phase is the first phase of the SDLC. The activities of this phase represent the formal start of system development work once a new system concept has been approved.



1.1 Purpose

The purpose of the Planning Phase is to define the system concept from the end users' perspective and establish a comprehensive technical approach for system development. In addition, the project team and key ITS stakeholders initiate other technical processes supporting the development effort.

1.2 Entry Criteria

Before a development project may begin the SDLC Planning Phase, the project's SDLC work pattern must be approved by means of SDLC Tailoring, and the IRB or project sponsor, as applicable, must approve the project Business Case.

1.3 Inputs

Inputs to the Planning Phase ensure that relevant information about the proposed system and project is available to project managers and stakeholders determining the system development approach. The following documents contain information that is instrumental to Planning Phase activities:

- Project Charter
- Capital Call Request (see CPIC)
- Business Case (see CPIC)
- Business Requirements Document (see PMO guidance)
- Project Management Plan (if applicable, see PMO guidance)
- Tailoring Plan
- Tailoring Report

1.4 Activities

This section provides detail on each activity in the Planning Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

1.4.1. Plan for system development (WBS 1.1)

This step expands preliminary project plans documented during project initiation. The PMO PM and ITS PM supplement initial plans with additional detail corresponding to the SDLC work pattern selected during tailoring. The system development approach is documented to specify relevant guidelines, standards, assumptions, constraints, roles, responsibilities, management and technical processes, work breakdown structure (WBS), schedule, cost, and other summary information.

The ITS PM and PMO PM collaborate to lead the following tasks:

- Examine project initiation information and review tailoring artifacts
- Refine the project management approach, including whether the system will be developed by in-house personnel or by contractors
- Define and document the system development approach, such as whether the system will be developed incrementally or fully
- Define technical procedures to be followed, including methods for requirements management, information security, data management, design, development, testing, release, etc.
- Develop project schedule estimates for new WBS elements, taking into account durations of tasks supporting deliverables and reviews
- Update project cost estimates for new WBS elements, taking into account technical life cycle considerations such as data management, information security, technical infrastructure, etc.

- Update project risk assessment as needed
- Establish a records management plan for the project consistent with OCC policy, standards, and procedures (see Records Management Program Office guidance)
- Establish contact with Acquisitions Management personnel and initiate project acquisitions activities in accordance with federal and OCC acquisition regulations
- Establish contact with required technical SMEs and set initial expectations for project roles and responsibilities
- Initiate or update Project Management Plan *

* Note: If a Project Management Plan was initiated prior to this stage, the existing plan should be updated with system development planning details. If a Project Management Plan does not yet exist for the project, it should be initiated at this stage.

1.4.2. Refine system concept of operations (WBS 1.2)

This step ensures that the system concept established during project initiation is refined in a manner that enables upcoming requirements generation and preliminary design. The project team translates high level business needs and system concepts into a description of how the system will operate from a user's perspective. In conjunction, initial technical attributes of the system are also documented at this stage.

The ITS PM leads the following tasks:

- Examine Planning Phase inputs to verify the business process to be supported, the proposed system concept, and the benefits sought
- Develop concepts for the proposed system, including how users will interact with the proposed system and the initial logical overview of system components and the support environment
- Refine WBS as the system concept is refined (i.e., adding system components and deliverables); update Project Management Plan as needed
- Initiate the Requirements Document by documenting system concepts, process requirements, and details about users

1.4.3. Develop system security approach (WBS 1.3)

In this step, personnel evaluate whether the system requires formal Certification and Accreditation (C&A), and begin planning the information security approach for the project. This activity is informed by initial system concepts documented during project initiation as well as system concept refinements made in parallel during this phase.

The PMO PM and ITS PM collaborate with representatives from ISO to conduct the following tasks:

- Review existing information security policies, guidelines, and standards published by ISO
- Begin executing tasks according to OCC ISO Certification and Accreditation Standard Operating Procedures (see ISO)
- Initiate System Security Plan (see ISO)
- Update Project Management Plan as needed

1.4.4. Define configuration management procedures and practices (WBS 1.4)

This step plans for the control of changes to project artifacts and work products through all phases of the project life cycle. This activity should be conducted after technical details about the system concept have begun to take shape.

The PMO PM and ITS PM collaborate with ECMPO representatives to conduct the following tasks:

- Review existing enterprise configuration management (CM) policies, guidelines, and standards published by ECMPO
- Determine CM roles and responsibilities for the project
- Define procedures for configuration change control, status accounting, audit and review, release management, and record keeping
- Define the system for controlling the configuration including storage media, procedures, and tools
- Initiate Configuration Management Plan deliverable by documenting results of initial CM planning activities
- Update Project Management Plan as needed

1.4.5. Define quality assurance procedures and practices (WBS 1.5)

This step ensures that methods for monitoring and controlling project quality are established before detailed development work begins. Methods should define how personnel will track adherence to documented quality standards for both the work products developed during the project life cycle as well as the technical processes being followed.

The PMO PM and ITS PM collaborate with representatives from the ITS QM Program Office to conduct the following tasks:

- Review existing quality assurance (QA) policies, guidelines, and standards published by ITS QM and the PMO, as applicable
- Determine quality objectives specific to the project
- Determine QA roles and responsibilities for the project

- Determine QA processes to be followed, including reviews, audits and independent verification and validation
- Determine project-specific QA procedures for problem reporting, corrective action and record keeping
- Establish project-specific evaluation criteria including quality requirements and metrics
- Initiate Quality Assurance Plan; update Project Management Plan as needed

1.4.6. Review and approve Configuration Management Plan (WBS 1.6)

This step accounts for a comprehensive review of the Configuration Management Plan deliverable to ensure that the approach is complete, adequate, and consistent with enterprise CM objectives. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS PM leads participants through the Deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Configuration Management Plan using the Configuration Management Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- If the deliverable is not accepted, revisit configuration management planning tasks, update the deliverable accordingly and repeat the review activity
- Outputs – Configuration Management Plan and Configuration Management Plan Deliverable Review Report

1.4.7. Review and approve Quality Assurance Plan (WBS 1.7)

This step accounts for a comprehensive review of the Quality Assurance Plan deliverable to ensure that the approach is complete, adequate, and consistent with enterprise QM objectives. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS PM leads participants through the Deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Quality Assurance Plan using the Quality Assurance Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*

- If the deliverable is not accepted, revisit quality planning tasks, update the deliverable accordingly and repeat the review activity
- Outputs – Quality Assurance Plan and Quality Assurance Plan Deliverable Review Report

1.4.8. Review and approve Project Management Plan (WBS 1.8)

This step accounts for a comprehensive review of the Project Management Plan deliverable to ensure that the approach is complete, adequate, and consistent with project planning objectives. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS PM leads participants through the Deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Project Management Plan using the Project Management Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- If the deliverable is not accepted, revisit project planning tasks, update the deliverable accordingly and repeat the review activity
- Output – Project Management Plan and Project Management Plan Deliverable Review Report

1.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Planning Phase. These roles are recommended and may be tailored according to project needs.

Table 2: Planning Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team	Records Management Program Office
Activities	Plan for system development	P	R	R		R		R			R	R	R	R	R			R		R
	Refine system concept of operations	A	P		R		R													
	Develop system security approach	R	P						R	R										
	Define configuration management procedures and practices	R	P	R					R	R							R			
	Define quality assurance procedures and practices	R	P			R										R		R		
	Review and approve Configuration Management Plan	R	P	R					R	R							A			
	Review and approve Quality Assurance Plan	R	P	R												A				
	Review and approve Project Management Plan	P	R	R	A	R					R	R	R	R	R			R		

1.6 Outputs

A variety of outputs are generated during the phase. Details about the outputs are as follows:

1.6.1. Finalized Configuration Management Plan

The Configuration Management Plan defines how enterprise CM policies and procedures will be implemented to manage the configuration of the system under development, specific to the project. It details how to manage system software, hardware and documentation changes throughout the development project. This deliverable is formally reviewed and finalized during the Planning Phase.

1.6.2. Finalized Quality Assurance Plan

The Quality Assurance Plan defines specific processes and procedures that will be implemented to perform quality assurance on the work products produced as well as the project itself. This deliverable is formally reviewed and finalized during the Planning Phase.

1.6.3. Finalized Project Management Plan

The Project Management Plan defines how the project will be conducted. It identifies relevant guidelines, standards, assumptions, constraints, roles, responsibilities, management processes, schedule, costs and other information relevant to the system development effort. During SDLC Planning, preliminary project plans are supplemented with details related to technical methods and procedures that will be employed to deliver the system. This deliverable is formally reviewed and finalized during the Planning Phase.

1.6.4. Planning Phase Reports

The following reports document outcomes from the formal reviews conducted during this phase. Specifically, the reports capture review outcomes and provide verification that the review has taken place. Reports for the Planning Phase include:

- Configuration Management Plan Deliverable Review Report
- Quality Assurance Plan Deliverable Review Report
- Project Management Plan Deliverable Review Report

1.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 1.6 is generated
- The Configuration Management Plan is formally reviewed and approved
- The Quality Assurance Plan is formally reviewed and approved
- The Project Management Plan is formally reviewed and approved

1.8 Supporting Artifacts

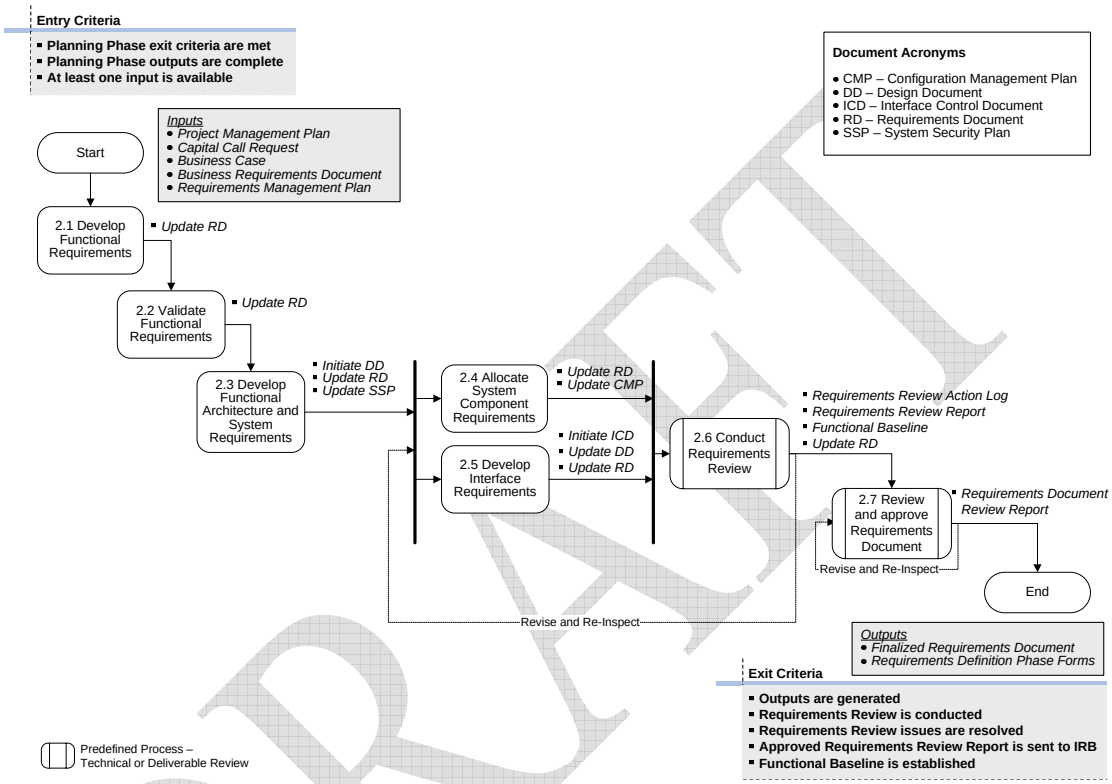
Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- Requirements Document Template
- Requirements Document Checklist
- Configuration Management Plan Template
- Configuration Management Plan Checklist

- Quality Assurance Plan Template
- Quality Assurance Plan Checklist
- Project Management Plan Template
- Project Management Plan Checklist
- System Security Plan Template (see ISO)
- Deliverable Review Report.

2 Requirements Definition Phase

The Requirements Definition Phase is the second phase of SDLC. The activities of this phase represent the translation of a preliminary system concept into a detailed description of the functionality that will be implemented throughout the remainder of the SDLC process.



2.1 Purpose

The purpose of the Requirements Definition Phase is to define and codify detailed requirements to ensure that the system will be developed to meet business needs. Functional baseline conditions shall be established with the concurrence of the project's business stakeholders, technical stakeholders and the project team.

2.2 Entry Criteria

Before a project may begin the Requirements Definition Phase, the Planning Phase exit criteria must be met, the Planning Phase outputs must be complete, and at least one input must be available.

2.3 Inputs

Inputs to the Requirements Definition Phase ensure that pre-existing information about the business need, system concept and project management approach is available to stakeholders. The following documents are instrumental to Requirements Definition Phase activities:

- Project Management Plan
- Capital Call Request (see CPIC)
- Business Case (see CPIC)
- Business Requirements Document (see CPIC)
- Requirements Management Plan (see PMO, if applicable)

2.4 Activities

This section provides detail on each activity in the Requirements Definition Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

2.4.1. Develop functional requirements (WBS 2.1)

The first step in the Requirements Definition Phase is to translate business needs and preliminary requirements into detailed functional requirements. Specifically, a comprehensive description of system functionality is developed based on the end users' standpoint.

Requirements analysts on the development team interact directly with business users and/or their representatives to conduct the following tasks:

- Define hierarchy of requirement types and establish framework for requirements traceability
- Configure requirements tracking system, if one is being used
- Verify OCC and applicable business unit(s) strategic objectives, business problems and opportunities, stakeholder needs, and high-level system features
- Identify applicable business processes and user classes
- Establish functional requirements for each user class
- Establish initial data requirements
- Update Requirements Document and populate the requirements tracking system

2.4.2. Validate functional requirements (WBS 2.2)

This activity confirms that the functional requirements accurately define how end users will use the system. This step should be conducted with the participation of technical personnel so that there is a collective understanding of functional requirements by the development team before detailed operational and technical requirements are generated.

The PMO Program Manager and ITS Project Manager lead requirements analysts and technical stakeholders through the following tasks:

- Conduct a meeting to review completeness and accuracy of individual functional requirements; leverage process inputs during the evaluation
- Identify the sequencing of time-critical functions
- Determine key requirements which will be used to track progress
- Update Requirements Document and requirements tracking system

2.4.3. Develop functional architecture and system requirements (WBS 2.3)

This activity serves to further refine functional requirements into system-level requirements expressed in technical terms. Initial design concepts and logic begin to take shape. All requirements developed in this step should be traced to the functional requirements defined previously.

The ITS Project Manager leads the development team and applicable technical stakeholders through the following tasks:

- Group requirements logically based on established criteria (e.g., similar functionality, performance needs, etc.)
- Allocate user requirements to functional groupings
- Derive the system functional architecture including system components and external interfaces
- Derive a logical data model including data entities and their attributes
- Coordinate with representatives from ISO to determine the system security accreditation boundary and conduct security categorization
- Define the environment in which the system or its components will operate and document operational requirements and scenarios
- Update Requirements Document and System Security Plan; initiate Design Document; update requirements tracking system

2.4.4. Allocate system component requirements (WBS 2.4)

This step results in the allocation of system performance, design constraints, and fit, form and function for all system components previously identified. The activity should be repeated until all components have been addressed.

The ITS Project Manager leads the development team and technical stakeholders, as needed, through the following tasks:

- Allocate functional and performance requirements to system components
- Allocate design constraints to system components*
- Document relationships among allocated requirements
- Document requirements traceability

- Update Configuration Management Plan, System Security Plan, Requirements Document, Design Document, and requirements tracking system

*Note: If a solution is not fully accessible for individuals with disabilities pursuant to Section 508 and FAR requirements, coordinate with the Section 508 Program Office to identify an Accessibility Plan. Document design constraints in the Design Document

2.4.5. Develop interface requirements (WBS 2.5)

This step establishes the functionality of external interfaces, including identification of data to be transferred, data volume, frequency of transfer and overarching performance requirements. This activity should be repeated for each interface.

The ITS Project Manager leads the development team and applicable technical stakeholders through the following tasks:

- Develop the functional requirements for the identified interfaces
- Coordinate with ISO to complete threat and vulnerability identification, identify security controls, and conduct initial risk determination
- Initiate Interface Control Document; update Requirements Document, Design Document, System Security Plan and requirements tracking system

2.4.6. Conduct Requirements Review (WBS 2.6)

This activity is a formal Technical Review conducted to verify the adequacy of documented requirements and validate whether a system developed according to them will meet the business need. This review should be conducted according to Technical Review process guidelines (see SDLC 3.1 Technical Reviews).

The ITS Project Manager appoints a Review Leader to oversee and coordinate the review, and directs the project team through the following tasks:

- Follow Requirements Review process (see SDLC 3.1 Technical Reviews)
- Continue activities according to review decision—*Proceed* or *Revise Requirements and Re-Inspect*
- Revise requirements as required, in order to resolve all issues and defects identified during the review
- Update deliverables as necessary
- Outputs – Requirements Review Action Log and Requirements Review Report

When initiating the Requirements Review process, the Review Leader is advised to develop custom review objectives and criteria. A recommended set of criteria from which to draw includes:

- Are the requirements necessary?
- Are the requirements sufficient to address stated business problems, opportunities, or needs?
- Do the requirements demonstrate an organizational benefit that is traceable to OCC business objectives and processes?
- Are the requirements complete, to include specifications for: processes, data, interfaces, operations, and security?
- Are the requirements complete and representative of all user classes and stakeholders?
- Are the requirements unambiguous?
- Are the requirements feasible?
- Are the requirements verifiable?

2.4.7. Review and approve Requirements Document (WBS 2.7)

This step accounts for a comprehensive review of the primary phase deliverable, the Requirements Document, in order to ensure that all requirements are documented in a manner that will permit the team to design the system in the next phase. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Requirements Document using the Requirements Document Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – Requirements Document Deliverable Review Report and Finalized Requirements Document

2.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Requirements Definition Phase. These roles are recommended and may be tailored according to project needs.

Table 3: Requirements Definition Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team
Activities	Develop functional requirements	R	R		P			R											
	Validate functional requirements	R	P	R	A			R											
	Develop functional architecture and system requirements	R	P			R	R	R	R	R	R	R	R	R					
	Allocate system component requirements	R	P			R			R		R	R	R	R			R	R	
	Develop interface requirements	R	P			R		R											
	Conduct Requirements Review	R	A	R			R	R	R	R	R	R	R	R	R	R	R	R	
	Review and approve Requirements Document	A	P	R	R		R	R	R	R	R	R	R	R	R	R	R	R	

2.6 Outputs

Outputs document the results of the phase and formally establish the system Functional Baseline (see ECMPO). Phase outputs are as follows:

2.6.1. Finalized Requirements Document

The Requirements Document records the formal requirements for the system. It defines what the product must do to support the system owner's business functions and objectives. It identifies what functions are to be performed on what data, to produce what results, at what location, and for whom. This deliverable should be initiated in the Planning Phase, and formally reviewed and finalized during the Requirements Definition Phase. It may be updated in future SDLC phases, if project scope changes are formally approved and the system requirements need to be amended.

2.6.2. Requirements Definition Phase Reports

The following reports document outcomes from the formal reviews conducted during this phase. Specifically, the reports capture review outcomes and provide verification that the review has taken place. Reports for the Requirements Definition Phase include:

- Requirements Document Deliverable Review Report
- Requirements Review Action Log
- Requirements Review Report (for Technical Review)

2.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 2.6 is generated
- The Requirements Review is conducted and formally concluded, producing an Action Log, which captures the resolution plan for all identified defects, and an approved Requirements Review Report
- All issues captured in the Action Log are resolved as planned
- The approved Requirements Review Report is provided to the IRB and/or project sponsor, as applicable
- The Functional Baseline of the system is established

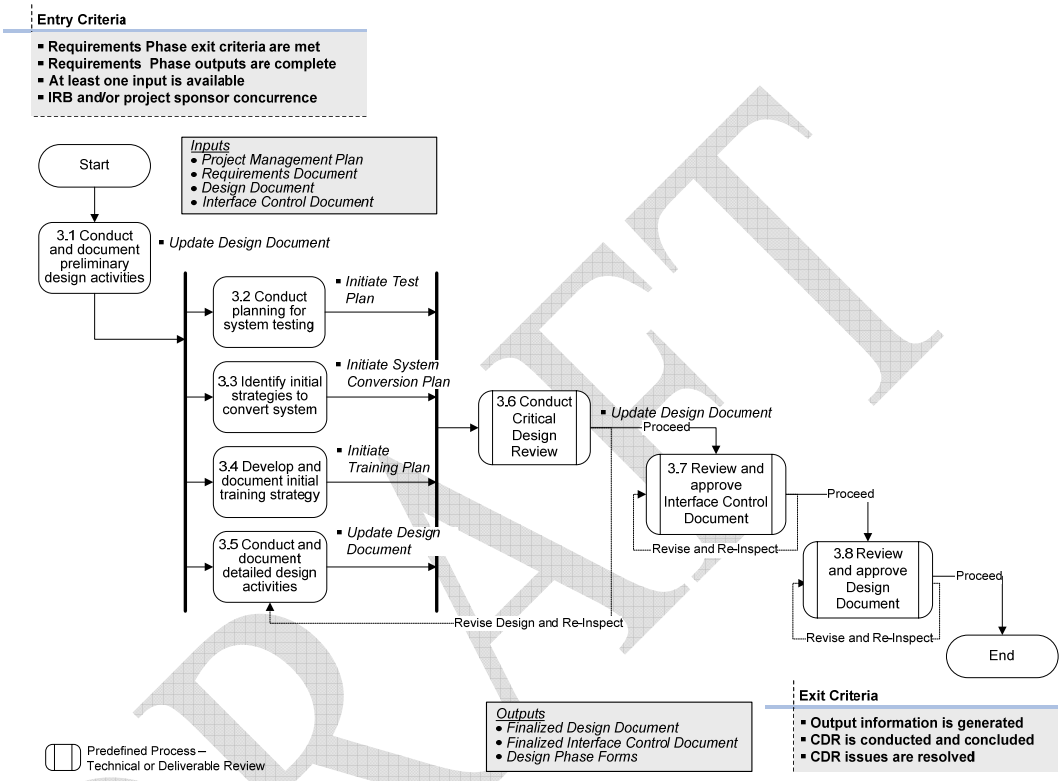
2.8 Supporting Artifacts

This section identifies prepared artifacts supporting the Requirements Definition Phase. The PMO Program Manager and ITS Project Manager can leverage the deliverable, report, and checklist templates that are provided, customizing them to his or her particular project as necessary. Artifacts not published by the SDLC Program Office are labeled accordingly – otherwise all artifacts listed here are available through SDLC Program Office resources.

- Requirements Document Template
- Requirements Document Checklist
- Interface Control Document Template
- Design Document Template
- Requirements Review Action Log
- Requirements Review Report
- Deliverable Review Report.

3 Design Phase

The Design Phase defines the overall architecture of the system. Through extensive interaction with stakeholders across multiple IT functions, the project team should produce a design with a manageable level of risk and increase the fidelity of plans for system development, testing and operation.



3.1 Purpose

The purpose of the Design Phase is to develop a logical, well-organized representation of the system that meets the functional requirements and is sufficiently detailed to enable system development.

3.2 Entry Criteria

Before a development project may begin the SDLC Design Phase, the Requirements Definition Phase exit criteria must be met, the Requirements Definition Phase outputs must be complete, and at least one Design Phase input must be available. Additionally, IRB and/or project sponsor concurrence to proceed serves as an entry criterion for the Design Phase.

3.3 Inputs

Inputs to the Design Phase ensure that relevant information about the system scope and approach from previous SDLC phases is available to the people designing the system. In particular, inputs describing the desired functionality of the system are needed to help participants validate that the design adequately addresses all requirements.

- Project Management Plan
- Requirements Document
- Design Document
- Interface Control Document

3.4 Activities

This section provides detail on each activity in the Design Phase, including a brief description of the purpose, a summary of roles, a list of tasks, and references to artifacts supporting the activity.

3.4.1. Refine preliminary design (WBS 3.1)

This step refines the high-level solution architecture initiated in previous activities. The design of primary system components and external interfaces needed to support the functional requirements is expanded and documented. All design elements developed in this step should be traced to the requirements defined previously.

The project team members collaborate to perform the following tasks, interacting with personnel in various ITS functional areas as needed:

- Expanding on the system functional architecture documented previously, define the application architecture, general support infrastructure and application infrastructure
- Expanding on functional interface requirements documented previously, continue to define system interface specifications
- Refine the logical data model as needed
- Coordinate with representatives from ISO to review security categorization
- Update Design Document, Interface Control Document, System Security Plan (see ISO) and requirements tracking system
- Evaluate preliminary design* (optional)

* Note that if SDLC tailoring identified that the project has a “high” risk profile, the ITS PM and PMO PM may choose to conduct a preliminary design review activity at this point in the design process. While formal preliminary design review procedures have not been published, the SDLC Critical Design Review process and other industry best practices are

recommended references for planning and conducting a preliminary design review.

3.4.2. Conduct planning for system testing (WBS 3.2)

This step ensures adequate planning for all testing activities performed during the Development and Testing Phases of the SDLC. Planning includes documenting details about the testing schedule, environment and individual test descriptions. This step should be executed according to the Business Service Delivery Group Test Team's "*Test Management Process (TMP) Standard Operating Procedure (SOP), V1.18.*"

The ITS Project Manager coordinates with ITS stakeholders and the Enterprise Test Team (ETT) to conduct the following tasks as documented in the TMP SOP:

- Set expectations of the TMP for the project
- Assemble test team and establish roles
- Plan testing effort and tailor TMP to project needs
- Agree upon TMP tailoring profile, approach and schedule
- Review project requirements for testability
- Initiate Test Plan (see ECMPO)

3.4.3. Identify initial strategies to convert system (WBS 3.3)

This step is optional – it should be taken if the new system is being established to replace one or more existing systems. The tasks ensure that the system structure, major components, and type of conversion effort are identified.

The project team members collaborate to perform these tasks, interacting with personnel in various ITS functional areas as needed:

- Begin to identify the strategies for converting hardware, software and data from an existing system to a new or modified system environment
- Initiate System Conversion Plan

3.4.4. Develop and document initial training strategy (WBS 3.4)

This step is recommended as a part of advance planning for the eventual release of the system to end users. It ensures preliminary plans for training are established with enough lead time to support the end user base.

The project team performs these tasks as necessary:

- Plan initial training objectives, needs, strategy and curriculum for training end users
- Initiate Training Plan

3.4.5. Conduct and document detailed design activities (WBS 3.5)

This step accounts for the elaboration of high-level architectural views into detailed design specifications at a level of granularity that will support development.

The project team members collaborate to perform these tasks, interacting with personnel in various ITS functional areas as needed:

- Develop the final application design
- Coordinate with Data Management Services to develop the physical database design
- Coordinate with ISO to complete activities for C&A preparation as well as System Security Plan development and acceptance
- If a solution is determined to be less than fully accessible for individuals with disabilities pursuant to Section 508 and FAR requirements, coordinate with Section 508 Program Office to develop an accessibility plan
- Develop and update prototype as needed (optional)
- Perform prototype approval process (optional)
- Update Requirements Document, Design Document, Interface Control Document, and System Security Plan (see ISO)

3.4.6. Conduct Critical Design Review (WBS 3.6)

This step is a formal phase gate activity conducted in order to identify design risks and determine risk resolution activities that must be completed before formal development activities begin. This activity is a formal Technical Review, and should be conducted according to Critical Design Review (CDR) process guidelines (see SDLC 3.1 Technical Reviews).

The ITS Project Manager appoints a Review Leader to oversee and coordinate the review, and then directs the project team to close out action items from the review:

- Follow Critical Design Review process (see SDLC 3.1 Technical Reviews)
- Continue activities according to CDR decision—*Proceed* or *Revise Design and Re-inspect*
- Revise design, as required, in order to resolve all issues and risks identified during the review
- Update deliverables as necessary
- Outputs - Critical Design Review Action Log and Critical Design Review Report

When initiating the CDR process, the Review Leader is advised to develop custom review objectives and criteria. A recommended set of criteria from which to draw includes:

- Does the final design meet all formal requirements?
- Does the final design comply with security requirements?
- Does the final design comply with Section 508 requirements?
- Is the final design consistent with the OCC enterprise architecture?
- Is the final design complete, logical, and testable with available resources?
- Have performance acceptance criteria been defined and sufficiently met in the design?
- Will testing be sufficient to ensure correctness of the design?
- Does the final design have an acceptable level of risk?

3.4.7. Review and approve Interface Control Document (WBS 3.7)

This step accounts for a comprehensive review of the Interface Control Document to ensure that all system interfaces are sufficiently documented. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the Deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Interface Control Document using the Interface Control Document Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Output – Interface Control Document Deliverable Review Report

3.4.8. Review and approve Design Document (WBS 3.8)

This step accounts for a comprehensive review of the primary phase deliverable, the Design Document, to ensure that all technical aspects of the design are documented in a manner that will permit the team to develop the system in the next phase. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the Deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Design Document using the Design Document Checklist

- Continue activities according to Deliverable Review decision—*Accept, Accept with Minor Rework,* or *Do Not Accept*
- Output – Design Document, Design Document Deliverable Review Report

3.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Design Phase. These roles are recommended and may be tailored according to project needs.

Table 4: Design Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team
Activities	Refine preliminary design	R	A			P	R	R	R	R	R	R	R						
	Conduct planning for system testing	R	A			P		R											R
	Identify initial strategies to convert system	R	A			P		R			R								
	Develop and document initial training strategy	R	A			P						R							
	Conduct and document detailed design activities	R	A			P	R	R	R	R	R	R	R					R	
	Conduct Critical Design Review	R	P	R				R			R	R	R			R			
	Review and approve Interface Control Document	R	A				R	R	R	R	R	R	R			R			
	Review and approve Design Document	R	A				R	R	R	R	R	R	R		R	R		R	

3.6 Outputs

Outputs document the results of the phase. Phase outputs are as follows:

3.6.1. Finalized Design Document

The Design Document is the primary deliverable produced during this phase, serving to document the results of the project team's design activities. Depending on the scope of the system, it will include descriptions of the high-level solution architecture, the user interface, system components, external interfaces, and system integrity controls. It provides an overall blueprint for the Development Phase, presenting the design in enough detail to allow the team to build the proposed system. The Design Document is recommended for initiation during the Requirements Definition Phase. It is formally reviewed and finalized during the Design Phase.

3.6.2. Finalized Interface Control Document

The Interface Control Document documents interfaces with other systems. It describes how data is transferred, identifies transaction types, and provides detailed interface specifications. The Interface Control Document is recommended for initiation during the Requirements Definition Phase. It is formally reviewed and finalized during the Design Phase.

3.6.3. Design Phase Reports

The following reports document outcomes from the formal reviews conducted during this phase. Specifically, the reports capture review outcomes and provide verification that the review has taken place. Reports for the Design Phase include:

- Deliverable Review Report
- Critical Design Review Action Log
- Critical Design Review Report

3.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 3.6 is generated.
- The Critical Design Review is conducted and formally concluded, producing a CDR Action Log that captures the resolution plan for all design risks identified, and an approved CDR Report.
- All issues captured in the CDR Action Log are resolved.

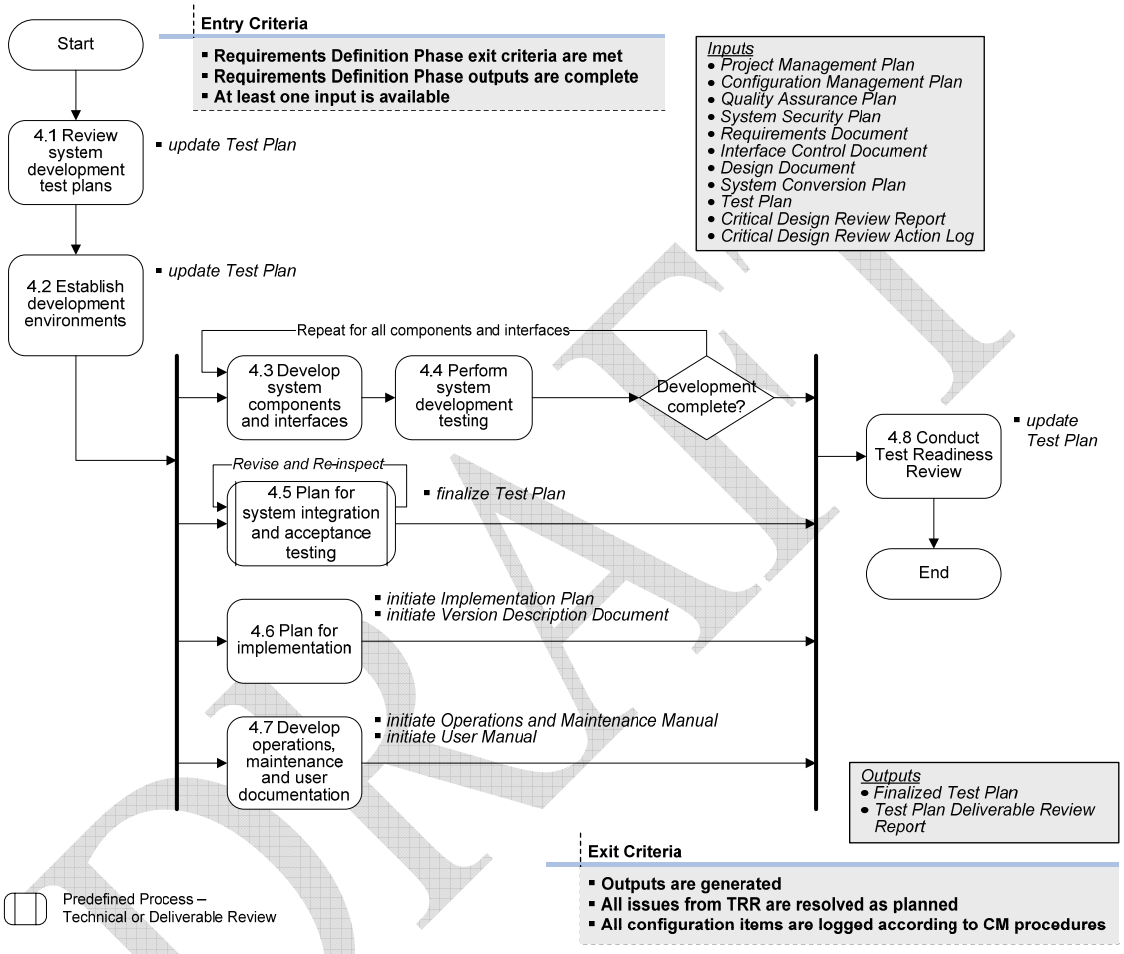
3.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- Design Document Checklist
- Interface Control Document Checklist
- Critical Design Review Action Log
- Critical Design Review Report
- System Conversion Plan Template
- Training Plan Template
- Test Plan Template (see ETT)
- Deliverable Review Report.

4 Development Phase

The Development Phase is the fourth phase of SDLC. Primary activities are shown below. Note that the sequence of events within this phase commonly varies between projects, due to differences in system design and development methodology employed.



4.1 Purpose

The purpose of the Development Phase is for the project team to systematically build and configure system components and external interfaces according to the design, while testing to verify that all documented requirements are met. All development should be complete by the end of the phase. Plans and documents that will support system implementation, operation and maintenance should be initiated in parallel.

4.2 Entry Criteria

Before a project may begin the Development Phase, the Design Phase exit criteria must be met, the Design Phase outputs must be complete, and at least one input must be available.

4.3 Inputs

Phase inputs ensure that information about the project's development and development testing methodology, requirements and system design are available to stakeholders. The following documents will be used to accomplish Development Phase objectives:

- Project Management Plan
- Configuration Management Plan
- Quality Assurance Plan
- System Security Plan (see ISO)
- Requirements Document
- Interface Control Document
- Design Document
- System Conversion Plan
- Test Plan (see ECMPO)
- Critical Design Review Report
- Critical Design Review Action Log
- System prototype, if applicable

4.4 Activities

This section provides detail on each activity in the Development Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

4.4.1. Review system development test plans (WBS 4.1)

The first step is to validate and verify that plans for system development testing are sufficient. Technical stakeholders identified in the Project Management Plan and/or Test Plan deliverables will review plans to ensure that all development testing objectives and tasks are understood.

The ITS Project Manager leads stakeholders through the following tasks:

- Distribute Test Plan to stakeholders
- Review system development test plans and document recommended changes
- Update system development test plans and notify stakeholders
- Verify that stakeholders concur with test plans and are prepared to support system development testing

- Verify that ISO representatives have sufficient information to establish methods and procedures for security assessments

4.4.2. Establish development environments (WBS 4.2)

This step establishes physical environments according to detailed specifications and plans specified in the Requirements Document and Test Plan deliverables. These environments consist of the services, connections, database and application servers, infrastructure, and/or desktop computers required to support system development and system development testing.

Developers on the project team will conduct the following tasks according to documented specifications:

- Coordinate with TI and ETT personnel as needed to install and configure environments for system development and system development testing
- Coordinate with ITS Data Management Services to configure database environments as planned
- Update Test Plan with configuration information for the system development and system development testing environments, as needed

4.4.3. Develop system components and interfaces (WBS 4.3)

Typically systems will have multiple components and/or interfaces. This step will be repeated for each system component and interface in the design. Once one or more components have been successfully developed, the project team will establish physical connections between components and external systems to support the business logic specified in the system design. Note that depending on the system development methodology being used, the exact sequence of development activities may vary between projects.

The ITS Project Manager will arrange assistance from technical SMEs and lead the project team on the following tasks:

- Develop software code, configure COTS software products, and/or configure hardware according to the approved system design
- Compile software to produce operational components, as needed
- Develop and/or implement database software
- Implement component or external system interfaces
- Implement applicable information system security controls
- Execute relevant aspects of System Conversion Plan, if applicable
- Update Test Plan with new or revised development testing scripts, as needed
- Coordinate with ISO to update security test plans, as needed

- Document notes to support implementation planning and the production of draft operations, maintenance, and user documentation
- Update configuration items in configuration management repository

4.4.4. Perform system development testing (WBS 4.4)

This activity is conducted for each component and interface built or configured, to exercise all system functions and logical paths. For example, after a component or interface has been coded and compiled or configured without error, it is tested as a standalone entity. When all components and interfaces have been successfully developed and connected, additional tests are conducted to verify that the components and interfaces function together as one unified system. All software defects uncovered should be fixed and re-tested to verify acceptable performance for each component and interface.

The ITS Project Manager leads the project team and applicable technical stakeholders, as needed, through the following tasks:

- Install developed components in system development test environment
- Execute tests according to specifications in the Test Plan
- Produce Test Analysis Report to document development test results
- Correct defects and re-test using planned defect tracking methods
- Update Requirements Traceability Matrix or requirements tracking system, if applicable
- Update configuration items in configuration management repository
- Interact with ISO representatives as needed during testing
- Interact with Section 508 Program Office for clarification in Accessibility testing or interpretation of results when necessary
- Output – Test Analysis Report for development testing

4.4.5. Plan for system integration and acceptance testing (WBS 4.5)

This step can be conducted in parallel with system development and system development testing activities. As the project team develops and tests system components during the Development Phase, details emerge that will influence the testing approach for the Test Phase. The objective of this activity is to finalize all remaining test plans and begin establishing integration testing and/or acceptance testing environments accordingly. Project teams should note the increasing need at this stage to maintain consistency between engineering environments.

The ITS Project Manager works with assigned representatives from the Enterprise Test Team to conduct the following tasks:

- Review development notes and test reports as information evolves during the phase

- Conduct a formal review of the Test Plan, according to Deliverable Review procedures documented by the QM Program Office
- Coordinate with TI and ETT personnel as needed to install and configure environments for system integration and system acceptance testing
- Coordinate with ITS Data Management Services to configure database environments according to plans
- Outputs – Test Plan Deliverable Review Report and Finalized Test Plan

4.4.6. Plan for implementation (WBS 4.6)

This step can be conducted in parallel with development and development testing activities. As the project team systematically develops and tests system components during the Development Phase, details become known which will provide clarity to personnel who will eventually support installation. The objective of this activity is to document technical and logistical aspects of how to implement the system in the production environment.

The ITS Project Manager leads the following tasks, consulting technical stakeholders from ITS ECMPO and Technical Infrastructure as needed:

- Review development notes and test reports as information evolves during the phase
- Conduct an impact analysis that includes an assessment of human resources required and the cycle time to build, test and implement the system
- Interact with ISO representatives as needed to support C&A Package development, if applicable
- Initiate draft Implementation Plan by documenting major implementation tasks, estimated release schedule, security requirements, and implementation support requirements (e.g., hardware, software, facilities, materials and personnel).
- Initiate draft Version Description Document to describe the primary components and configuration of the developed system

4.4.7. Develop operations, maintenance and user documentation (WBS 4.7)

This activity can also be conducted in parallel with development and development testing activities. As the project team systematically develops and tests system components and interfaces during the Development Phase, they will develop an understanding of how different categories of users such as administrators and end users will use the system once it is operational. The objective of this activity is to document instructions for how to operate, maintain and use the system.

The ITS Project Manager oversees project team members in carrying out the following tasks:

- Initiate draft Operations and Maintenance Manual by documenting the procedures for administering or
- upgrading the system and underlying system software
- Initiate draft User Manual by documenting procedures for operating the system to perform its essential business functions

4.4.8. Conduct Test Readiness Review (WBS 4.8)

This activity should be conducted when development is determined to be complete. It is a comprehensive review conducted to validate that all system development and configuration tasks are complete and verify that the preparations for system integration testing and system acceptance testing are complete. Participants collectively determine whether project stakeholders are adequately prepared conduct the remaining tests that have been planned.

The ITS Project Manager, Configuration Manager, and other applicable technical stakeholders conduct the following tasks:

- Prepare for Test Readiness Review according to relevant enterprise configuration management procedures (see ECMPO)
- Review test analysis report for system development testing to verify outcomes of development tests (see ECMPO)
- Review Test Plan to verify that Test Phase preparations are complete
- Schedule the Test Readiness Review meeting
- Conduct the Test Readiness Review meeting
- If needed, update and revise test plans according to the outcomes of the review

When conducting a Test Readiness Review, the ITS Project Manager is advised to customize review objectives and criteria for the project. A recommended set of criteria from which to draw includes:

- Is development and configuration of the system complete?
- Have all issues and defects uncovered during development testing been documented and successfully resolved?
- Does the Test Plan identify all tests to be conducted in the Test and Implementation Phases?
- Does the Test Plan adequately account for resources needed to conduct testing?
- Does the planned test schedule adequately account for the time required to conduct testing?
- Are the planned tests adequate to verify that the design was implemented correctly?

- Are the planned tests adequate to validate that requirements have been met?
- Are the expected test results identified?
- Are risks associated with testing identified, along with mitigation plans?
- Is a fall-back plan identified, in case technical issues arise during testing?

4.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Development Phase. These roles are recommended and may be tailored according to project needs.

Table 5: Development Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team
Activities	Review system development test plans	R	A	R		P					R					R			R
	Establish development environments	R	A			P		R			R	R	R				R		R
	Develop system components and interfaces	R	A			P													
	Perform system development testing	R	A			P										R			R
	Plan for system integration and acceptance testing	R	A	R		R				R	R	R				R		R	P
	Plan for implementation	R	A	R		P					R	R	R	R			R		
	Develop operations, maintenance and user documentation	R	A			P						R	R		R				
	Conduct test readiness review	R	P	R		R					R	R	R	R		R	A	R	R

4.6 Outputs

Outputs document the results of the phase. Phase outputs are as follows:

4.6.1. Finalized Test Plan

The Test Plan deliverable provides a detailed plan of all tests that will be conducted during the Development and Test Phases, as well as a template for test analysis reports that will be generated. The tests outlined in this document will be exercised to validate that the system operates according to the approved system design and that all requirements are met. It includes procedures for multiple test types, including: unit, string, functional, interoperability, security, performance, 508 compliance, installation & implementation, stability, and user acceptance tests. This deliverable should be initiated in the Design Phase. It is updated and finalized during the Development Phase.

4.6.2. Development Phase Reports

One report documents outcomes from the formal review conducted during this phase. Specifically, this report captures review outcomes and provides verification that the review has taken place.

- Test Plan Deliverable Review Report

4.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 4.6 is generated
- All issues identified in the Test Readiness Review are resolved as planned
- All software and hardware developed and/or configured during the phase is logged according to configuration management procedures

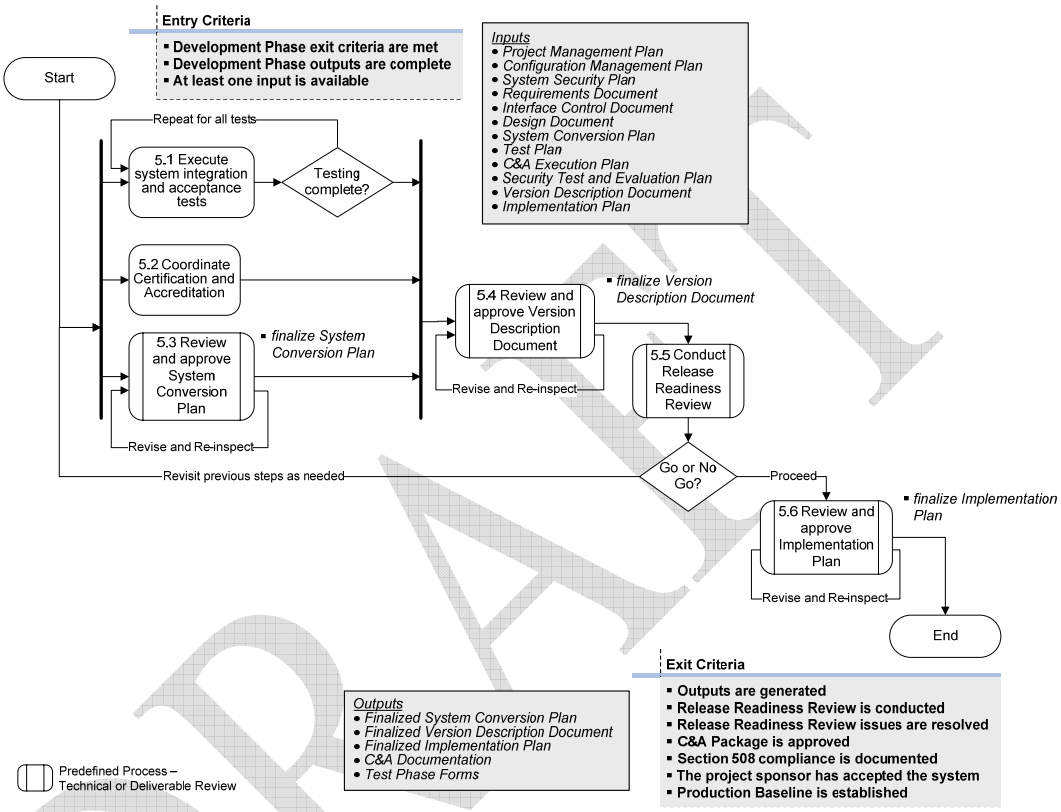
4.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- Version Description Document Template
- Operations and Maintenance Manual Template
- User Manual Template
- Implementation Plan Template
- Test Plan Template (see ECMPO)
- Deliverable Review Report.

5 Test Phase

The Test Phase is the final step before deploying a system to its end users. Multiple aspects of the system are tested to ensure it fulfills requirements and operates without error. In addition, the development team finalizes the system's plan for implementation prior to completing the Test Phase.



5.1 Purpose

The purpose of the Test Phase is to verify that the developed system functions properly, satisfies requirements and performs adequately in the host environment.

5.2 Entry Criteria

Before a project may begin the Test Phase, the Development Phase exit criteria must be met, the Development Phase outputs must be complete, and at least one input must be available.

5.3 Inputs

Inputs to the Test Phase ensure that information about the project's development and development testing methodology, requirements and system design are available to stakeholders. The following documents should be used to accomplish Test Phase objectives:

- Project Management Plan
- Configuration Management Plan
- System Security Plan (see ISO)
- Requirements Document
- Interface Control Document
- Design Document
- System Conversion Plan
- Test Plan (see ECMPO)
- C&A Execution Plan (see ISO)
- Security Test and Evaluation Plan (see ISO)
- Version Description Document
- Implementation Plan

5.4 Activities

This section provides detail on each activity in the Test Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

5.4.1. Execute system integration and acceptance tests (WBS 5.1)

This step executes system integration and system acceptance tests. These tests may be performed multiple times until established "pass" criteria are met. This activity also includes resolving issues discovered during testing.

The Enterprise Test Team, development team, ITS stakeholders, and the project sponsor will work together as needed to conduct the following:

- Install system software and databases in test environments
- Execute system integration tests and produce test analysis reports
- Execute system acceptance tests and produce test analysis reports
- Perform defect tracking procedures and implement system updates
- Validate that the system satisfies its intended use
- Obtain final approval from project sponsor according to procedures outlined in the Test Plan and Project Management Plan
- Update Test Plan as needed

5.4.2. Coordinate certification and accreditation (WBS 5.2)

This step applies to projects which are determined by the Information Security Office to require full certification and accreditation. It includes a comprehensive assessment of the management, operational and technical security controls of the system. This assessment helps to determine the extent to which security controls are implemented correctly, operating as intended and producing the desired outcome. This step should be executed according to *"OCC Information Security Office (ISO): Certification and Accreditation (C&A) Standard Operating Procedures (SOP), Version 1.1."*

The ITS Project Manager coordinates with ISO to conduct the following:

- Review plans documented in the C&A Execution Plan and Security Test & Evaluation Plan
- Perform certification activities
- Perform accreditation activities
- Output - C&A Documentation

5.4.3. Review and approve System Conversion Plan (WBS 5.3)

This step is optional – it should be taken if the new system is being established to replace one or more existing systems. This activity accounts for a comprehensive review of the System Conversion Plan, to verify the strategies for converting hardware, software and data from the existing environment to the new or modified system environment. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the System Conversion Plan using the System Conversion Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – System Conversion Plan Deliverable Review Report and Finalized System Conversion Plan

5.4.4. Review and approve Version Description Document (WBS 5.4)

This step accounts for a comprehensive review of the Version Description Document after an audit of the functional and physical configuration by the Configuration Management (CM) Program Manager. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager coordinates with the CM Program Manager to lead participants through the deliverable Review tasks as follows:

- Follow Deliverable Review (see QM Program Office)
- Review the Version Description Document using the Version Description Document Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – Version Description Document Deliverable Review Report and Finalized Version Description Document

5.4.5. Conduct Release Readiness Review (WBS 5.5)

This activity is a formal Technical Review, conducted to ensure that the system is ready for deployment. The Release Readiness Review is also referred to as "Go or No Go." Specifically, it verifies that the system has passed all testing, implementation planning is adequate and deployment risks are within an acceptable range. This review should be conducted according to Release Readiness Review process guidelines (see SDLC 3.1 Technical Reviews).

The ITS Project Manager appoints a Review Leader to oversee and coordinate the review, and directs the project team through the following tasks:

- Follow Release Readiness Review process (see SDLC 3.1 Technical Reviews)
- Continue activities according to review decision—*Proceed* or *Address Issues and Re-Inspect*
- Modify system software or hardware, as required, in order to resolve all issues and defects identified during the review
- Update deliverables as necessary
- Outputs – Release Readiness Review Report and Release Readiness Review Action Log

When conducting a Release Readiness Review, the ITS Project Manager is advised to customize review objectives and criteria for the project. A recommended set of criteria from which to draw includes:

- Does the system satisfactorily perform the required function in the production environment?
- If applicable, has the system conversion process been validated?
- If applicable, has ISO verified that the system has received "authority to operate"?
- Is the production baseline complete, including the production system, databases, updated data dictionary and supporting documentation?

- Can user training be successfully completed in the Implementation Phase?
- Is the system ready for deployment?

5.4.6. Review and approve Implementation Plan (WBS 5.6)

This step accounts for a comprehensive review of the Implementation Plan. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Implementation Plan using the Implementation Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – Implementation Plan Deliverable Review Report and Finalized Implementation Plan

5.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Test Phase. These roles are recommended and may be tailored according to project needs.

Table 6: Test Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team
Activities	Execute system integration and acceptance tests	R/P	A/R		A	P		R	R	R					R	R	R	R	P/R
	Coordinate certification and accreditation	R	P						R	A									
	Review and approve System Conversion Plan	R	A					R			R								
	Review and approve Version Description Document	R	A	R							R						P		
	Conduct Release Readiness Review	A	P	R						R	R	R	R						
	Review and approve Implementation Plan	R	A	R							R	R	R	R					

5.6 Outputs

Outputs document the results of the phase. Phase outputs are as follows:

5.6.1. Finalized System Conversion Plan

The System Conversion Plan is an optional deliverable that is applicable only if the new system is being developed to replace an existing system. This deliverable identifies the strategies for converting hardware, software and data from the existing system to the new system environment. The System Conversion Plan is recommended for initiation during the Design Phase and should undergo a formal Deliverable Review prior to exiting the Test Phase.

5.6.2. Finalized Version Description Document

This deliverable serves as the primary configuration control document used to track and control system versions that are released to the production environment. Once approved, it establishes the system's production baseline. The Version Description Document is recommended

for initiation during the Development Phase and should undergo a formal Deliverable Review prior to exiting the Test Phase.

5.6.3. Finalized Implementation Plan

The Implementation Plan describes how the system will be deployed and transitioned to a production environment for all installation sites. This deliverable is initiated during the Development Phase and should undergo a formal Deliverable Review prior to exiting the Test Phase.

5.6.4. Certification and Accreditation Documentation

Certification and Accreditation (C&A) documentation is a compilation of documents used to support accreditation determinations. It includes the Security Assessment Report, System Security Plan, Plan of Action and Milestones, Certification Memo and Accreditation Memo. See the C&A standard operating procedures published by the Information Security Office for relevant templates and detailed procedures for completing this documentation.

5.6.5. Test Phase Reports

The following reports document outcomes from the formal reviews conducted during this phase. Specifically, the reports capture review outcomes and provide verification that the review has taken place. Reports for the Test Phase include:

- System Conversion Plan Deliverable Review Report
- Version Description Document Deliverable Review Report
- Implementation Plan Deliverable Review Report
- Release Readiness Review Report
- Release Readiness Review Action Log

5.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 5.6 is generated
- The Release Readiness Review is conducted and formally concluded, producing an approved Release Readiness Review Report and an Action Log, which captures the resolution plan for all identified defects
- All issues captured in the Release Readiness Review Action Log are resolved
- The C&A Package is approved
- Section 508 compliance is documented
- The business sponsor has accepted the system

- The production baseline of the system is established

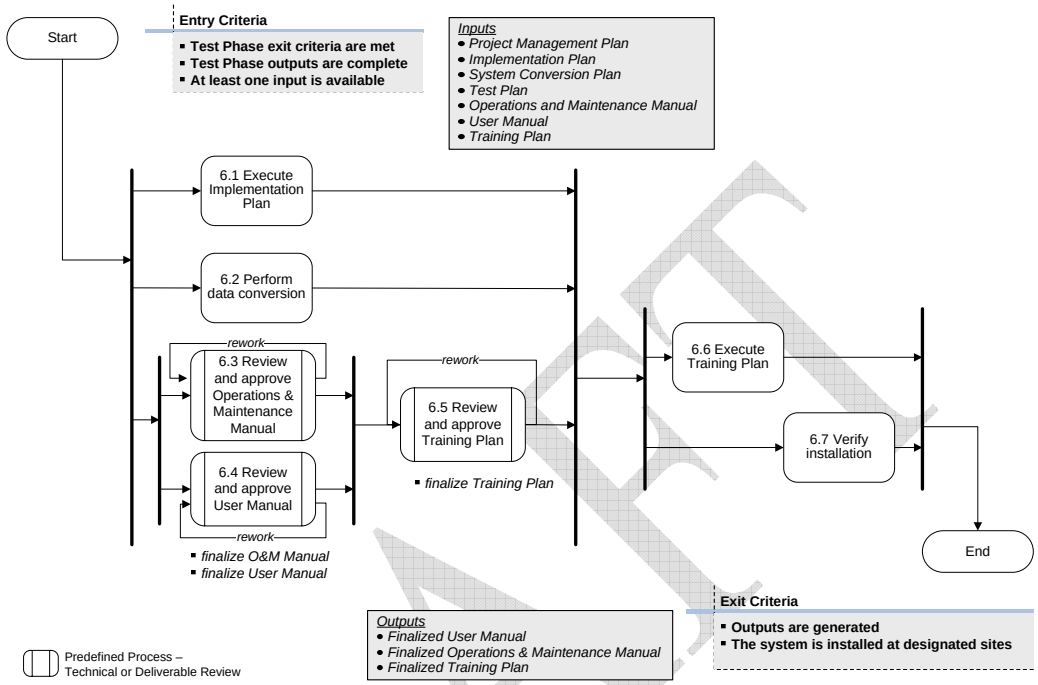
5.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- System Conversion Plan Checklist
- Version Description Document Checklist
- Implementation Plan Checklist
- Release Readiness Requirements Review Report
- Release Readiness Review Action Log
- Deliverable Review Report.

6 Implementation Phase

The Implementation Phase is the phase during which the system is installed and prepared for operation.



6.1 Purpose

The purpose of the Implementation Phase is to deploy the system at the designated production sites and verify with relevant stakeholders that the system is ready for operation.

6.2 Entry Criteria

Before a project may begin the Implementation Phase, the Test Phase exit criteria must be met, the Test Phase outputs must be complete, and at least one input must be available.

6.3 Inputs

Inputs to the Implementation Phase ensure that information required to successfully deploy the system and train operators and users is available to stakeholders. The following documents should be used to accomplish Implementation Phase objectives:

- Project Management Plan
- Implementation Plan

- System Conversion Plan
- Test Plan (see ECMPO)
- Training Plan
- Operations and Maintenance Manual
- User Manual

6.4 Activities

This section provides detail on each activity in the Implementation Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

6.4.1. Execute Implementation Plan (WBS 6.1)

This step entails the coordinated execution of installation tasks according to procedures documented in the Implementation Plan. System components and interfaces are installed in the production environment.

The ITS Project Manager and development team coordinates with SMEs from multiple technical areas to conduct the following tasks:

- Verify production environment including facilities, hardware, software, telecommunications and network infrastructure
- Contact affected organizations regarding cutover dates and responsibilities
- Complete installation of hardware and software
- Verify integrity of configuration items
- Install system at each site and verify success of implementation

6.4.2. Perform data conversion (WBS 6.2)

If applicable to a system development project, this step accounts for converting data from the existing system(s) to the new system. Procedures documented in the System Conversion Plan are executed to ensure that data is translated into a media and format that is acceptable to the new system.

The ITS Project Manager coordinates activities of the development team and Data Management personnel to conduct the following tasks:

- Schedule conversion
- Extract “clean” legacy data from existing system(s)
- Execute conversion
- Verify converted data

6.4.3. Review and approve Operations and Maintenance Manual (WBS 6.3)

This step accounts for a comprehensive review of the Operations and Maintenance Manual. This activity can be conducted after final operational details of the system are known and updates to the deliverable are complete. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the Operations and Maintenance Manual using the Operations and Maintenance Manual Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – Operations and Maintenance Manual Deliverable Review Report and finalized Operations and Maintenance Manual

6.4.4. Review and approve User Manual (WBS 6.4)

This step accounts for a comprehensive review of the User Manual. This activity can be conducted after final operational details of the system are known and updates to the deliverable are complete. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Review the User Manual using the User Manual Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – User Manual Deliverable Review Report and finalized User Manual

6.4.5. Review and approve Training Plan (WBS 6.5)

This step accounts for a comprehensive review of the Training Plan. This activity can be conducted after operations, maintenance, and usage procedures are finalized and updates to the Training Plan are complete. This activity is a formal Deliverable Review established to ensure consistency and quality of (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review (see QM Program Office)

- Review the Training Plan using the Training Plan Checklist
- Continue activities according to Deliverable Review decision—*Accept*, *Accept with Minor Rework*, or *Do Not Accept*
- Outputs – Training Plan Deliverable Review Report and finalized Training Plan

6.4.6. Execute Training Plan (WBS 6.6)

This step ensures that end users, including operations and maintenance personnel, are adequately trained to operate the new system in the production environment. Training activities should be executed in accordance with the Training Plan. Additionally, the development team should monitor training activities to determine whether training techniques are achieving desired results.

The ITS Project Manager will work with the development team to conduct the following:

- Finalize training schedule and materials
- Deliver training for all required personnel
- Solicit feedback about training materials
- Analyze feedback and develop recommended changes to materials
- Modify training materials as necessary

6.4.7. Verify installation (WBS 6.7)

This step verifies the success of system installation according to procedures documented in the Implementation Plan. Once the project team determines that the installation was successful, the system is turned over to its end users.

The ITS Project Manager leads the development team to conduct the following tasks:

- Review implementation at each site according to post-implementation verification procedures
- Determine whether implementation was successful
- If successful, turn over system to end users
- If unsuccessful, implement back-out plan

6.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Implementation Phase. These roles are recommended and may be tailored according to project needs.

Table 7: Implementation Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team
Activities	Execute Implementation Plan		A			P													
	Perform data conversion		A			P		R											
	Review and approve Operations and Maintenance Manual	R	A						R		R	R	R						
	Review and approve User Manual	R	A											R					
	Review and approve Training Plan	R	A											R					
	Execute Training Plan		A			P													
	Verify installation	R	A		R	P													

6.6 Outputs

Outputs document the results of the phase. Phase outputs are as follows:

6.6.1. Finalized Operations and Maintenance Manual

The Operations and Maintenance Manual presents a detailed operational description of the system as well as information to aid personnel in its maintenance. This deliverable is recommended for initiation during the Development Phase and should undergo a formal Deliverable Review prior to exiting the Implementation Phase.

6.6.2. Finalized User Manual

The User Manual presents essential system-related information to ensure that users can successfully operate the system. It describes system functions and provides detailed instructions on how to operate the system. The User Manual is initiated during the Development Phase and should undergo a formal Deliverable Review prior to exiting the Implementation Phase.

6.6.3. Finalized Training Plan

The Training Plan documents the strategies for developing and delivering system training to end users and/or administrators. The Training Plan is recommended for initiation during the Design Phase and should undergo a formal Deliverable Review prior to exiting the Implementation Phase.

6.6.4. Implementation Phase Reports

The following reports document outcomes from the formal reviews conducted during this phase. Specifically, the reports capture review outcomes and provide verification that the review has taken place. Reports for the Implementation Phase include:

- Operations and Maintenance Manual Deliverable Review Report
- User Manual Deliverable Review Report
- Training Plan Deliverable Review Report

6.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 6.6 is generated
- The system is successfully installed at the designated sites

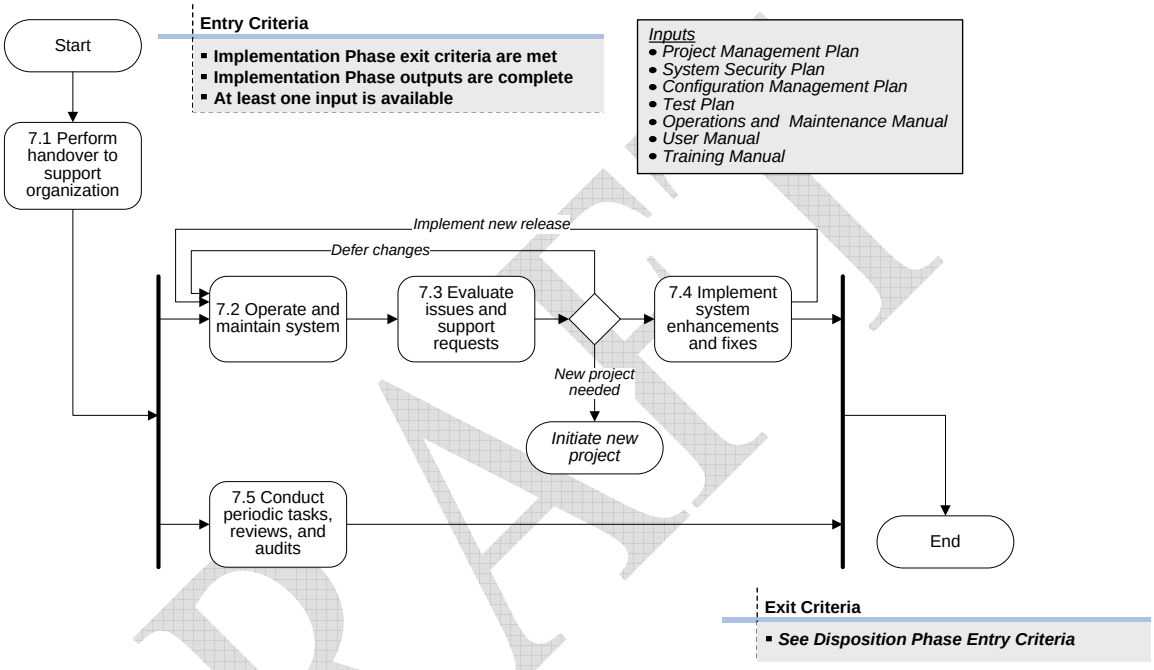
6.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document. Artifacts not published by the SDLC Program Office are labeled accordingly.

- Operations and Maintenance Manual Checklist
- User Manual Checklist
- Training Plan Checklist
- Deliverable Review Report.

7 Operations and Maintenance Phase

The Operations and Maintenance Phase is the phase during which end users operate the system to perform the business functions defined through SDLC process activities. A system development project enters this phase after the system is implemented and is verified to operate as planned in the production environment.



7.1 Purpose

The purpose of the Operations and Maintenance Phase is to operate the system and provide support to end users. As needed, staff and contractors providing support services for this phase will conduct maintenance and/or implement enhancements in response to end user needs.

7.2 Entry Criteria

Before a project may begin the Operations and Maintenance Phase, the Implementation Phase exit criteria must be met, the Implementation Phase outputs must be complete, and at least one input must be available.

7.3 Inputs

Inputs to the Operations and Maintenance Phase ensure that information required to operate, maintain and use the system is available to project

stakeholders and end users. The following documents should be used to accomplish Operations and Maintenance Phase objectives:

- Project Management Plan
- System Security Plan (see ISO)
- Configuration Management Plan
- Training Plan
- Operations and Maintenance Manual
- User Manual

7.4 Activities

This section provides detail on each activity in the Operations and Maintenance Phase, including a brief description of its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

7.4.1. Perform handover to support organization (WBS 7.1)

This step accounts for the handover of the implemented system from the development team to an operations and maintenance support team as documented in SDLC deliverables and according to relevant ITS procedures. The support team includes multiple ITS divisions and may also involve an outside vendor contracted to provide support for operations and maintenance activities.

The PMO Program Manager and ITS Project Manager leads stakeholders through the following tasks:

- Execute transition activities and perform knowledge transfer as detailed in the Project Management Plan, Training Plan, and Operations and Maintenance Manual
- Working with O&M support personnel, initiate relevant operations and maintenance processes

7.4.2. Operate and maintain system (WBS 7.2)

This step entails providing direct support to end users by operating the system in the production environment. The operations and maintenance support team will perform system maintenance, as needed, to maintain applicable service level agreements or otherwise ensure that service will not be disrupted.

The operations and maintenance support team coordinates to perform the following tasks, according to procedures outlined in the Operations and Maintenance Manual:

- Field and respond to end user support requests

- Document end user support requests
- Monitor and record system performance information
- As needed, conduct ad hoc and/or periodic maintenance to maintain acceptable service levels

7.4.3. Evaluate issues and support requests (WBS 7.3)

This step accounts for the review of operational issues and end user support requests that arise during the course of system operations. Each issue/request is processed according to documented configuration change control procedures in the Configuration Management Plan, and in accordance with relevant enterprise CM policies and procedures.

Personnel assigned to project configuration management roles facilitate the following tasks:

- Assemble issues and support requests into formal change requests
- Plan and conduct change control reviews to determine resolution – *defer changes, implement new release, or initiate new project**
- Document outcomes of change control reviews

* Note: If a determination is made that the changes constitute either major modifications or a new project then a new project should be initiated, following the full SDLC life cycle (see CPIC guidance for additional details on evaluation criteria).

7.4.4. Implement system enhancements and fixes (WBS 7.4)

This step entails carrying out configuration changes that are determined to be within the scope of the existing project. System enhancements and fixes are grouped into a release version and changes are made according to applicable maintenance and release management procedures. Generally, this will require additional resources as well as a project plan (e.g. scope, schedule, cost, etc.).

The PMO Program Manager leads the following tasks:

- Coordinate with ITS stakeholders to review the scope of the version release and establish project requirements
- As needed, perform SDLC Tailoring and conduct project planning consistent with applicable IT policies, standards, procedures and guidelines
- Assemble project team by acquiring (as needed) and/or assigning resources
- Execute project plan to implement changes and complete version release

7.4.5. Conduct periodic tasks, reviews and audits (WBS 7.5)

This step accounts for multiple ongoing tasks, reviews and audits that must be conducted to maintain compliance with relevant policies and regulations.

The PMO Program Manager coordinates with specialists from related program areas to complete the tasks as follows:

- In conjunction with version releases, coordinate with ECMPO to conduct configuration management audits (see ECMPO procedures)
- Coordinate with ISO to conduct continuous monitoring activities (see ISO C&A procedures)
- Conduct periodic data archiving and retention activities in accordance with the records schedule established during project planning (see Records Management Program Office procedures)
- Conduct periodic disaster recovery testing and reviews (see ISO and TI procedures)
- Conduct periodic EA conformance reviews (see EA procedures)
- Conduct periodic CPIC "evaluate" process reviews (see CPIC procedures)
- Conduct periodic resource and capacity planning reviews (see TI procedures)

7.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Operations and Maintenance Phase. These roles are recommended and may be tailored according to project needs.

Table 8: Operations and Maintenance Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs	PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team

Activities	Perform handover to support organization	A	P			R		R	R		R	R	R	R	R	R	R		R
	Operate and maintain system	A			R	P	R	R	R	R	R	R	R	R		R	R		R
	Evaluate issues and change requests	P			R	R		R	R		R	R	R	R		R	A	R	
	Implement system enhancements and fixes	A				P		R			R	R	R			R	R	R	R
	Conduct periodic reviews and audits	A			R	P	R	R	R		R	R	R	R		R	R	R	

7.6 Outputs

Existing project documentation is generally updated throughout the course of operations and maintenance. However, no formal deliverable reviews are prescribed.

7.7 Exit Criteria

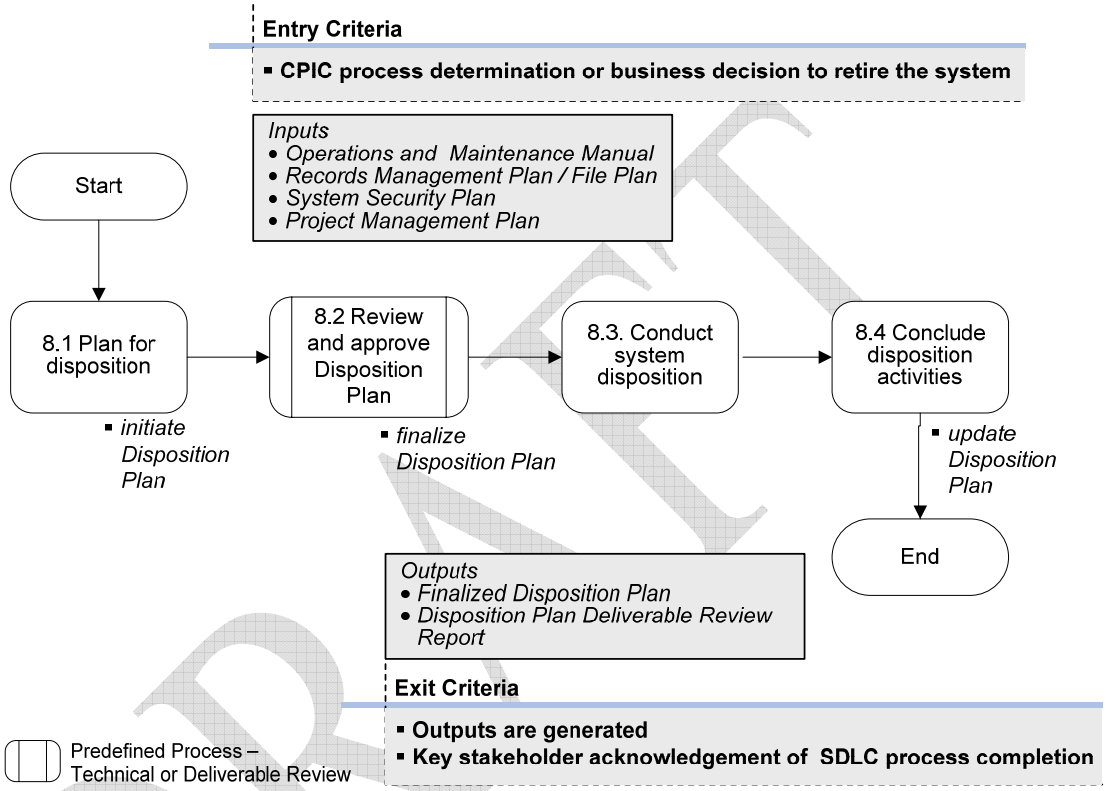
The Operations and Maintenance Phase continues until CPIC activities trigger entry criteria for the Disposition Phase. In practice, a system may remain operational for many years provided it continues to meet the business need(s) it was developed to address. Refer to Disposition Phase entry criteria for additional details.

7.8 Supporting Artifacts

Artifacts supporting the Operations and Maintenance Phase are defined and maintained by multiple ITS program offices. In particular, detailed procedures with supporting forms, checklists, and reports are available from the organizations referenced in this phase: ECMPO, ISO, Records Management, TI, EA, and CPIC, among others.

8 Disposition Phase

The Disposition Phase is the final phase of the SDLC process. The Disposition Phase consists of system retirement activities that ensure an orderly termination of the system and the preservation of any vital information so that system components can be reactivated, if necessary.



8.1 Purpose

The purpose of the Disposition Phase is to provide for the removal of a system-of-interest and related operational and support services. The Disposition Phase accomplishes two main objectives: 1) the system is retired by terminating the system operations and removing the system from the production environment, and 2) the system components, data, and documentation are archived and/or destroyed.

8.2 Entry Criteria

OCC CPIC procedures, which govern periodic system reviews and business decisions determining the end of a system's useful life, trigger system disposition. For systems outside the CPIC process, business decision to retire the system serves as an entry criterion for the Disposition Phase.

8.3 Inputs

Inputs to the Disposition Phase ensure that information necessary to conduct system disposition planning is available. The following documents should be used to accomplish Disposition Phase objectives:

- Operations and Maintenance Manual
- Records Management Plan / File Plan (see Records Management Program Office)
- System Security Plan (see ISO)
- Project Management Plan.

8.4 Activities

This section provides detail on each activity in the Disposition Phase, including a brief description of the activity, its purpose, a summary of roles involved, a list of tasks, and references to supporting artifacts.

8.4.1. Plan for disposition (WBS 8.1)

This step involves planning activities which are documented in the Disposition Phase's key deliverable – the Disposition Plan. The Plan documents activities for the retirement of system data, software and hardware as well as outlines the strategy to notify stakeholders and system users.

The ITS project manager works with the records management staff, data administrator, security managers, and the project team to conduct the following:

- Identify stakeholders
- Develop disposition schedule
- Locate all project documentation
- Consider parallel operations (if applicable)
- Consider system dependencies
- Develop Communications Plan
- Plan data disposition
- Address records management requirements
- Plan software disposition
- Plan hardware disposition
- Plan system documentation disposition
- Plan equipment disposition
- Plan facilities disposition
- Plan staff reallocation

8.4.2. Review and approve Disposition Plan (WBS 8.2)

This activity accounts for a comprehensive review of the Disposition Plan in order to verify the strategies for system retirement. This activity is a formal Deliverable Review established to ensure consistency and quality of deliverables (see QM Program Office).

The ITS Project Manager leads participants through the deliverable Review tasks as follows:

- Follow Deliverable Review process (see QM Program Office)
- Continue activities according to Deliverable Review decision—*Accept, Accept with Minor Rework,* or *Do Not Accept*
- Outputs – Disposition Plan Deliverable Review Report and finalized Disposition Plan

8.4.3. Conduct system disposition (WBS 8.3)

This step involves the implementation of the Disposition Plan and carrying out of activities required for system retirement.

The ITS Project Manager coordinates with records management, operations and support staff to conduct disposition tasks as follows:

- Notify users
- Archive or transfer data
- Archive or transfer software components
- Dispose of equipment
- Archive life cycle deliverables
- Complete all other disposition activities (as applicable)

8.4.4. Conclude disposition activities (WBS 8.4)

This step completes Disposition Phase activities with final tasks that document the results of system retirement and obtain stakeholder acknowledgement.

The ITS Project Manager leads the following tasks:

- Complete Disposition Report (Attachment B to the Disposition Plan)
- Obtain acknowledgement of key stakeholders of SDLC process completion.

8.5 Roles

The following table identifies participants, as well as their responsibilities, for each activity in the Disposition Phase. These roles are recommended and may be tailored according to project needs.

Table 9: Disposition Phase Roles and Responsibilities

Key: P – **P**rimarily responsible for activity R – **R**eviews and concurs with activity A – **A**pproves activity after receiving the appropriate review sign-offs		PMO Program Manager	ITS Project Manager	SDLC Program Manager	Business Manager	Project Team	EA Program Manager	Data Management ADCIO	Information System Security Officer	Chief Information System Security Officer	Desktop Engineering ADCIO	DC & SO ADCIO	Telecommunications Officer	Technical Support ADCIO	COTR	QA Program Manager	CM Program Manager	508 Program Manager	Enterprise Test Team	Records Management Program Office
Activities	Plan for disposition		P			R		R	R											R
	Review and approve Disposition Plan	A		R	R		R	R	R		R	R	R	R	R	R	R			
	Conduct system disposition		P					P				P		P						P
	Conclude disposition	A	P	R				R	R			R		R						R

8.6 Outputs

Outputs document the results of the phase. Phase outputs are as follows:

8.6.1. Finalized Disposition Plan

The Disposition Plan is the primary deliverable that is initiated and finalized during the Disposition Phase. The Plan initially outlines all of the planning activities for system retirement and, upon successful system disposition, is updated using the Disposition Report (Attachment B).

8.6.2. Disposition Phase Reports

One report documents outcomes from the formal review conducted during this phase. Specifically, this report documents review and approval of the Disposition Plan.

- Disposition Plan Deliverable Review Report

8.7 Exit Criteria

Exit criteria include:

- Output information identified in Section 8.6 is generated
- Key stakeholder acknowledgement of SDLC process completion

8.8 Supporting Artifacts

Templates for the artifacts listed below can be found in the Appendix of this document.

- Disposition Plan Template
- Disposition Plan Checklist
- Deliverable Review Report.

References

OCC References

- Capital Planning and Investment Control User Guide, Version 1.0, OCC, Oct. 2007
- Data Retention and Disposition Policy for Federal Records, PPM 3120-45, Records Management Program Office, OCC, Nov. 2005
- ITS Enterprise Configuration Management Procedures Version 1.0, OCC Information Technology Services, July 2006
- OCC Comprehensive Records Retention and Disposition Schedule, Aug. 2008
- OCC CPIC User Guide Version 1.0, Oct. 2007
- OCC Information Security Office (ISO): Certification and Accreditation (C&A) Standard Operating Procedures (SOP), Version 1.1, Jun. 2008
- PPM 3120-1 (Rev), OCC Records Management Program, Mar. 2008
- PPM 3120-45, Data Retention and Disposition Policy for Federal Records
- Records Management Plan / File Plan, Mar. 2008
- Release Management Plan, v.1.0, ITS BSD ECMPO, Mar. 2008
- SDLC 2.1 Manual, OCC, May 2005
- SDLC 3.0 Manual, OCC, Oct. 2007
- Suggestions on Recordkeeping and Files for the OPMO, Program Manager and COTR, Memo, May 2007
- Supervision PMO Requirements Management Plan, v.1.0 OCC, Apr. 2007
- Test Management Process (TMP) Standard Operating Procedure (SOP), V1.18, Business System Delivery Group Test Team, Feb. 2008

Industry Benchmarks and References

- "Adoption of ISO/IEC 15288:2002 Systems Engineering Life Cycle Processes", IEEE Std. 15288-2004, June 2005.
- "CMMI for Development", v.1.2, Software Engineering Institute, Aug. 2006
- "Configuration Management (CM) Plans: The Beginning to Your CM Solution," the Software Engineering Institute (SEI), Jul. 1993
- "DOJ System Development Lifecycle Guidance", Information Resources Management, January 2003
- "Guide for Information Technology – System Definition – Concept of Operation Document," Std. 1362-1998, IEEE, May 1998

- "IEEE Standard for Software Reviews," IEEE Std. 1028-1997, Mar. 1998
- "IEEE Std for Developing a Software Project Life Cycle Process," IEEE Std. 1074-2006, Jan. 2006
- "Information System Life Cycle (ISLC) Manual", TD P 84-01 v.2.0, U.S. Department of Treasury, Jul. 1994
- "IT System Development Life Cycle Guide," Version 1.0, U.S. Department of Agriculture, Jan. 2007
- "Software life cycle processes – Life cycle data," IEEE/EIA 12207.1-1997, Apr. 1998
- "Standard for Information Technology – Software Life Cycle Processes," IEEE/EIA 12207.0-1996, Mar. 1998
- "Standard for Software Quality Assurance Plans," Std. 730-2002, IEEE, 2002
- "System Development Methodology", v.6.05, US Department of Housing and Urban Development, June 2005
- "Systems Engineering – A guide for the application of ISO/IEC 15288 (System life cycle processes)," ISO/IEC TR 19760:2003, Nov. 2003.

Appendix

SDLC Manual
Version 3.1

SDLC 3.1 Tailoring Profile Calculation Worksheet

Project Name:		**Worksheet Version:**	
Date Completed:		**By:**	

The Tailoring Profile Calculation Worksheet determines the tailoring profile of the project. This worksheet identifies the numerical weight assigned to specific tailoring factors associated with the characteristics of the project. The assigned numerical values are used to calculate the total tailoring profile value associated with the project. The factor values range from 0 to 10, with 10 being the highest.

This worksheet must be attached to the SDLC Tailoring Plan and SDLC Tailoring Report.

Numerical Weight of Project Profile Tailoring Factors

Project Category	Tailoring Profile Factor	Factor Value
Development Time and Costs	Life cycle development costs are over $5,000,000 or annual development costs are over $1,000,000.	10
	Life cycle development costs are over $100,000 and less than $5,000,000 or annual development costs are over $75,000 and less than $1,000,000.	5
	Life cycle development costs are less than $100,000 or annual development costs are less than $75,000.	0
Mission Criticality	System failure has irreparable impact on OCC mission.	10
	System failure has severe impact on OCC mission.	5
	System failure has moderate impact on OCC mission.	3
	System failure has minimal impact on OCC mission.	1
	System failure has minimal impact on OCC mission and manual back-up processes are available in the event of system failure.	0
System Security	Data loss or data integrity issues have irreparable impact on OCC operations.	10
	Data loss or data integrity issues have severe impact on OCC operations.	5
	Data loss or data integrity issues have moderate impact on OCC operations.	3
	Data loss or data integrity issues have minimal impact on OCC operations.	1
	Data loss or data integrity issues have minimal impact on OCC operations and manual back-up processes are available in the event of data loss or data integrity problems.	0
System Performance	System must provide for real-time processing with time constraints.	3
	System must provide for real-time processing.	2
	System must provide for near real-time processing.	1
	System must provide for daily or less frequent processing.	0
Business Processes	System implements a new business process.	3
	System implements a modified business process.	1
	System implements a current or slightly modified business process.	0
Development Schedule	Development schedule is compressed.	3
	Development schedule is optimized or follows a critical path.	1
	Development schedule has planned contingencies or built-in reserve.	0

Tailoring Profile Calculation Worksheet (Enter the tailoring profile factor and the associated factor value. Then enter the total tailoring profile factor value.)		
Profile Category	**Tailoring Profile Factor**	**Factor Value**
Development Time and Costs		0
Mission Criticality		0
System Security		0
System Performance		0
Business Processes		0
Development Schedule		0
Total Tailoring Profile Factor Value		

The project falls into one of two tailoring profile categories: High or Low. The project is assigned a tailoring profile based on the total tailoring profile factor value derived from this worksheet.

Definition of Tailoring Profile Categories

Tailoring Profile Category	Total Tailoring Profile Factor
High	17-39
Low	0-16

The SDLC Tailoring Recommendations for Project Tailoring Profile Level identifies the recommended SDLC deliverables and technical reviews based on a particular project profile level.

SDLC Tailoring Recommendations for Project Profile Level

Deliverables and **Technical Reviews**	Tailoring Profile	
	Low	**High**
Project Management Plan	√	√
Configuration Management Plan		√
Quality Assurance Plan	√	√
System Security Plan	√	√
Requirements Document	√	√
Interface Control Document		√
Test Plan	√	√
Requirements Review	√	√
Design Document	√	√
System Conversion Plan		√
Critical Design Review	√	√
Training Plan		√
Version Description Document	√	√
Operations and Maintenance Manual		√
User Manual		√
Implementation Plan		√
Certification and Accreditation Package	√	√
Release Readiness Review	√	√
Disposition Plan	√	√

Comments

SDLC 3.1 Tailoring Plan

Project Name:		**Document Version:**	
Date Completed:		**By:**	

This checklist is used by the ITS Project Manager and PMO Program Manager to tailor the SDLC work pattern for a particular system development project. The completed document should be submitted to the project Contracting Officer's Technical Representative (COTR) and SDLC Program Manager for review and the concurrence and to the Business Manager or project sponsor for approval.

1) Select the box next to the deliverable or review that will be tailored out.
2) For deliverables or reviews to be tailored out, provide a Tailoring Description identifying if SDLC templates will be used, combined, modified, or substituted by an alternative approach.
3) In the Justification column, explain why a deliverable or review will be tailored out or modified.

Deliverables and Technical Reviews	Tailor Out	Tailoring Description	Justification
Project Management Plan	☐*		
Configuration Management Plan	☐		
Quality Assurance Plan	☐		
Requirements Review	☐		
Requirements Document	☐*		
System Security Plan	☐*		
Interface Control Document	☐		
Critical Design Review	☐		
Design Document	☐*		
Test Plan	☐		
System Conversion Plan	☐		
Training Plan	☐		
Version Description Document	☐		
Implementation Plan	☐		
Certification and Accreditation Package	☐*		
Release Readiness Review	☐		
Operations & Maintenance Manual	☐		
User Manual	☐		
Disposition Plan	☐		

* Note: Deliverables and reviews marked with an asterisk are highly recommended for inclusion in a system development project's work pattern, and should not be tailored out without sufficient justification.

SDLC 3.1 Tailoring Report

Project Name:		**Report Version:**	
Date Completed:		**By:**	

Original/Recommended Project Tailoring Profile (Select one)**:** ☐ **High** ☐ **Low**
From Tailoring Profile Calculation Worksheet

	Yes	No	N/A
1. Is the Tailoring Profile Calculation Worksheet attached?	☐	☐	☐
2. Is the SDLC Tailoring Plan attached?	☐	☐	☐
3. Have the tailoring recommendations based on tailoring profile level been included in the tailored work pattern?	☐	☐	☐
4. Have justifications been provided for any deviation from the tailoring recommendations?	☐	☐	☐

Comments

Tailoring Decision

The Decision Maker(s) must provide formal concurrence on the tailored work plan and note the result below.

☐ **Accept –** The tailored work plan is acceptable
☐ **Accept with minor rework –** The tailored work plan is acceptable with minor rework
☐ **Do not accept –** The tailored work plan is not acceptable and needs significant rework

Decision Maker(s) (print name)	**Signature**	**Date**
Concur: ____ ITS Project Manager	_____	
Concur: ____ PMO Program Manager	_____	
Concur: ____ Contracting Officer's Technical Representative (COTR)	_____	
Concur: ____ SDLC Program Manager	_____	
Approve: ____ Business Manager / Project Sponsor	_____	

SDLC 3.1 Tailoring Request for Deviation

Project Name:		**Document Version:**	
Date Completed:		**By:**	

	Yes	No	N/A
Is the revised Tailoring Plan attached?	☐	☐	☐

Current SDLC Phase:	
Tailoring Request: *Summary of proposed changes to the Tailoring Plan*	
Deliverables / Reviews Impacted: *Name Deliverables or Reviews to be tailored out*	
Project/System Impact: *Describe how new tailoring will affect the project/system, its scope, schedule, costs, etc.*	
Impact Mitigation Strategy: *Describe proposed approach to address negative impacts brought on by tailoring*	

Comments

Tailoring Decision

The Decision Maker(s) must provide formal concurrence on the tailored work plan and note the decision below.

☐ **Accept –** The tailored work plan is acceptable
☐ **Accept with minor rework –** The tailored work plan is acceptable with minor rework
☐ **Do not accept –** The tailored work plan is not acceptable and needs significant rework

Decision Maker(s) (print name)	Signature	Date
Concur: ____ ITS Project Manager	_____	
Concur: ____ PMO Program Manager	_____	
Concur: ____ Contracting Officer's Technical Representative (COTR)	_____	
Concur: ____ SDLC Program Manager	_____	
Approve: ____ Business Manager / Project Sponsor	_____	

Consistent, repeatable processes...predictable results

SDLC 3.1 Manual

Requirements Review Process

Table of Contents

1 Purpose of the Process

The Requirements Review is conducted to verify that requirements are complete according to SDLC guidelines. Requirements are evaluated to ensure that they are necessary and sufficient, that they are traceable to higher level requirements and defined functionality, and that they adequately balance stakeholder needs and constraints. The focus of the process is a review meeting conducted live before a panel of IT subject matter experts (SMEs) in order to uncover and address issues not sufficiently addressed in the system development project documentation up to that point.

1.1 Scope of the Process

The Requirements Review is defined as a formal SDLC Technical Review. Technical reviews are applicable to all system development projects at OCC, but can be tailored out of the project plan based on business needs and constraints, on the recommendation of the ITS Project Manager (ITS PM) with the approval of the PMO Program Manager (PMO PM)[1].

It is useful to note some additional characteristics of the Requirements Review process, and about SDLC technical reviews, in general:

- The duration of a technical review will generally be several hours (two hours is ideal). A technical review should be concise and targeted. The focus among participants should be on achieving consensus on the action items that are needed to address the technical issues and risks that were identified during the meeting.
- The Requirements Review process itself can be tailored by a project manager to suit business needs/constraints. Additional tailoring flexibilities include:
  - Modifying what materials will serve as inputs to the process
  - Modifying what content will be presented during a review
  - Changing the activities that will be conducted before, during, and after the review meeting
  - Changing the roles and assigning the participants for the review.

1.2 Preconditions

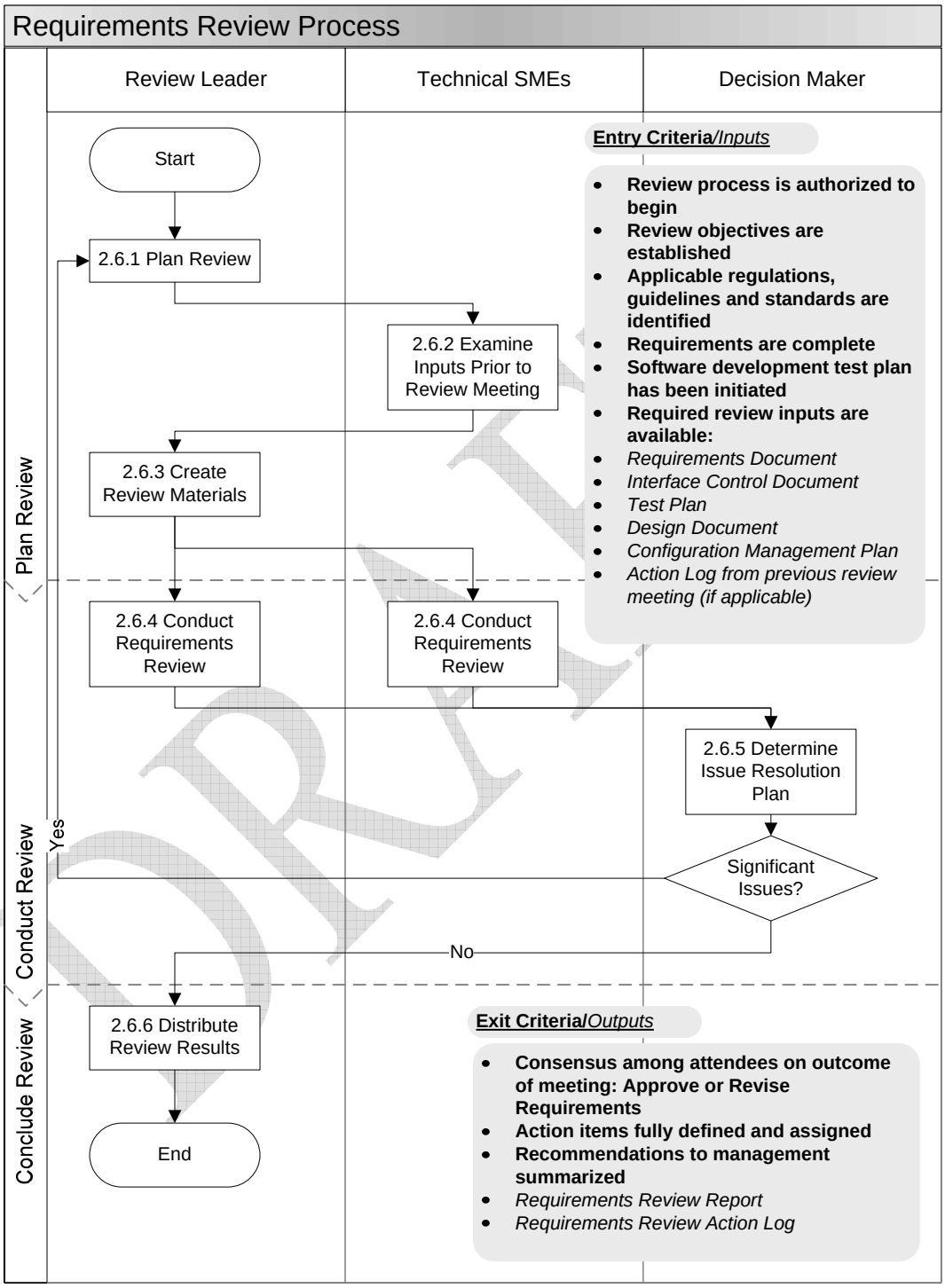
A high degree of advance planning and coordination is required to attain quality results. The following conditions should be established for a project before any Technical Review is conducted:

- The ITS PM and PMO PM should complete SDLC tailoring in order to formally verify whether the Requirements Review will be included in the project's work plan.

[1] SDLC Tailoring Process, SDLC Manual.

- The ITS PM and PMO PM should include time and resource requirements for the full technical review process when estimating the project schedule.
- When the baseline work plan is complete, the ITS PM should have a kick-off meeting with stakeholders in ITS. The ITS PM should provide estimated dates for the Requirements Review if it is tailored into the plan.
- The ITS PM should work with the ITS Quality Management (ITS QM) department to communicate and/or train ITS personnel on how to provide effective feedback, before and during the technical review process.

2 Graphical Overview of the Process



3 Entry Criteria

Entry criteria include:

- ITS PM and PMO PM have authorized the review process to begin
- Review objectives are established
- Requirements are complete, including (as applicable): user classes, functional requirements, system and system component requirements, interface requirements, and operational requirements
- Software development test plan has been initiated
- SDLC deliverables – unless waived or consolidated by an approved tailoring plan – are available as inputs, including:
  - Requirements Document
  - Interface Control Document
  - Design Document
  - Test Plan
  - Configuration Management Plan.

4 Process Inputs

Inputs include:

- Statement of objectives for the review
- Relevant regulations, standards, and guidelines that may influence requirements from relevant information management areas such as Enterprise Architecture, Data Management, Information Security, Configuration Management, Acquisitions, Quality Management, Section 508, Technical Infrastructure, and IT Operations
- Information from project deliverables, including:
  - Functional, system, and operational requirements plus Requirements Traceability Matrix from *Requirements Document*
  - Overview of system interfaces from *Interface Control Document*
  - High-level system architecture from *Design Document*
  - Current test plans from *Test Plan*
  - Overview of software configuration management approach from *Configuration Management Plan*
- Action Log from previous Requirements Review meeting, if significant issues or risks were found and subsequently corrected.

5 Activities

The technical review process consists of three general stages, with activities conducted before, during, and after the review. This section provides detail about each activity in a Requirements Review including a brief description of its purpose, a summary of roles, a list of tasks, and references to artifacts supporting the activity.

5.1 Plan Review (WBS 2.6.1)

This step ensures that the objectives and agenda for the Requirements Review meeting are established, the participants are identified and confirmed, and the inputs are prepared for distribution. This activity should be conducted well in advance (e.g., at least two weeks before the desired meeting date) to allow adequate time for preparation and scheduling.

The Review Leader fills the primary role, performing the following tasks:

- Collect review inputs from development Project Team Members and prepare artifacts to facilitate examination by reviewers
- Develop and document review objectives and procedures, including criteria for examining inputs and logging issues and risks
- Determine individual review participants and assign to review roles; if a conflict prevents an individual from participating, he or she should assign an alternative representative or proxy
- Schedule meeting and announce details to participants
- Distribute inputs and supporting artifacts to participants for examination.

5.2 Examine Inputs Prior to Review Meeting (WBS 2.6.2)

This step establishes a common understanding of the documented requirements among participants, and serves to capture issues and risks that reviewers want to discuss during the review meeting. This activity should be conducted with enough lead-time before the review to give reviewers adequate time to go through inputs and formulate topics for discussion.

The following roles perform these tasks:

- Technical SMEs individually examine review inputs, record issues and risks based on their area of technical expertise, and return feedback to the Review Leader
- The Review Leader consolidates the examination results, using the Requirements Review Action Log template.

5.3 Create Review Materials (WBS 2.6.3)

This step accounts for the organization of material for the review meeting. This activity should be conducted before the review meeting.

The Review Leader performs these tasks:

- Prepare review briefing by leveraging meeting objectives, inputs, and examination results from Technical SMEs
- Meet to examine review materials and finalize meeting procedures with individual assigned to Decision Maker role
- Provide Project Team Members with review materials, allowing them to address or develop responses to issues and risks raised by Technical SMEs when they examined the inputs.

5.4 Conduct Requirements Review (WBS 2.6.4)

This step ensures that requirements are presented to Technical SMEs, in order to elicit concurrence with the requirements, development test plan, or other attributes of the project.

Participants perform the following tasks:

- Review Leader and Decision Maker call meeting to order and present procedures plus meeting objectives
- Review Leader coordinates the presentation of the requirements briefing
- Technical SMEs analyze requirements to determine whether they satisfy the objectives of higher level requirements; to ensure that they are complete, feasible, attainable, and verifiable; and to identify validation issues and expose unstated needs and customer requirements
- Technical SMEs provide comment and feedback, elaborating on existing issues and risks, as well as identifying additional ones
- Review participants collaborate to identify key requirements that have a strong influence on cost, schedule, functionality, risk, or performance
- Review Leader and Decision Maker provide guidance, as necessary, while the meeting is in progress; any topics needing closure before the meeting ends are reviewed before the meeting is adjourned
- Review Leader or an assigned Recorder record meeting minutes
- Review Leader or Recorder populate the Action Log with issues and risks raised during the discussion
- Review Leader obtains clarification from Technical SMEs as needed.

5.5 Determine Issue Resolution Plan (WBS 2.6.5)

This step establishes actionable plans for resolving requirements issues and risks that are recorded during the review meeting. This activity should be conducted before the meeting is adjourned.

Participants collaborate on these tasks as follows:

- Review Leader leads attendees through a review of items documented in the Action Log; for each item classified as a risk (meaning it is an event that has not yet occurred), the group will prioritize each risk by impact and probability; resolution actions, action owners, and target completion dates should be assigned to each line item
- Decision Maker provides concurrence – and authority if needed – for risk categorization/prioritization and resolution planning
- If necessary, Review Leader postpones resolution planning for any issues or risks on which the audience concurs more information is required from members of staff not present; relevant follow-up actions must be noted
- If necessary, Review Leader identifies any issues or risks needing to be deferred to senior management for resolution

- Review Leader or Recorder documents the discussion by populating the Action Log and Review Report
- Review Leader determines the conclusion of the meeting and cedes the floor to the Decision Maker
- Decision Maker formally closes the meeting by reviewing the Review Report with attendees, soliciting concurrence on the final disposition of the outcome, and signing the Report.

5.6 Distribute Review Results (WBS 2.6.6)

This step accounts for the distribution of meeting outputs to project stakeholders. It ensures there is a common understanding of action items and key milestones needed to complete Requirements Definition Phase activities, in order to proceed into the next life cycle phase, Design. This activity should be conducted after the review meeting is adjourned. Note that it is the responsibility of the Review Leader, working with the project manager(s) as necessary, to track all action items on the completed Action Log through to completion after the review process concludes.

The Review Leader, with the assistance of Recorder, completes the following tasks:

- Finalizes the meeting minutes and Action Log
- Distributes review outputs and verifies receipt by all participants.

6 Process Roles

Roles, potential actors, and responsibilities are shown in the table below. Note that several roles are listed as alternative roles. The Review Leader should determine whether or not to include these roles, depending on the scope and content of the planned review.

Role Name/Definition	**Potential Actors** (not a complete list)	**Responsibilities**
Decision Maker: Represents the primary interest of the business customer for the system being developed.	*Assign one individual:* ▪ Business Sponsor ▪ ITS Senior Manager	▪ Work with SMEs to achieve concurrence on topics raised during review ▪ Approve the review outcome
Review Leader: Represents the interest of all review participants, by ensuring that they have an opportunity to fulfill their roles during the meeting.	*Assign one individual:* ▪ PMO Program Manager ▪ ITS Project Manager ▪ Independent third-party, outside of project team	▪ Acts as independent facilitator ▪ Coordinate all activities ▪ Lead and facilitate the review meeting ▪ Review and approve all artifacts supporting the process

Role Name/Definition	**Potential Actors** (not a complete list)	**Responsibilities**
Recorder (optional): The individual assigned to document the events and outcomes of the meeting.	*Assign one individual:* ▪ Project Team Assistant	▪ Document all activities using relevant artifacts
Technical SME: Represents ITS by evaluating the technical adequacy and risk profile of the requirements, as presented.	*Assign multiple individuals, as needed:* ▪ Enterprise Architecture ▪ Data Management ▪ Information Security ▪ Configuration Management ▪ Section 508 ▪ Systems Engineering and Operations ▪ Enterprise Support Services ▪ Data Center & Server Operations ▪ Telecommunications ▪ Technical Support ▪ Desktop Engineering ▪ Infrastructure Compliance	▪ Review inputs ▪ Attend review meeting ▪ Submit issues, risks and recommendations
<Alternate Role> Management Staff: Represents the agency as a whole.	*Assign multiple individuals, as needed:* ▪ ITS Senior Management ▪ PMO Senior Management	▪ Attend review meeting
<Alternate Role> Project Team Members: Individuals from the project team of the system under development.	*Assign multiple individuals, as needed:* ▪ PMO Program Manager ▪ ITS Project Manager ▪ Systems Engineers ▪ Software Developers ▪ Database Designer ▪ Test Personnel	▪ Address issues and risks raised before the review meeting ▪ Attend review meeting ▪ Present relevant topics at review meeting ▪ Answer questions for audience members at review meeting
<Alternate Role> Customer or User Representative: Represents the business customer for the system being developed.	*Assign multiple individuals, as needed:* ▪ Business Unit representatives	▪ Attend review meeting

7 Process Outputs

Outputs include:

- Meeting minutes
- Requirements Review Report
- Requirements Review Action Log

8 Exit Criteria

Exit criteria include:

- Consensus among Technical SMEs that requirements are necessary and sufficient, that their relationship to higher level requirements and the higher level defined functionality is fully described
- Consensus among Technical SMEs that requirements are unambiguous, complete, feasible, and verifiable
- All issues and risks identified by review participants have been documented with specific resolution plans (i.e., action items, owners, and target dates)
- Decision Maker determines that all issues and risks elicited through the review have been recorded with sufficient detail for resolution
- Decision Maker has accepted the meeting outcomes and has authorized the project to continue to requirements finalization, by indicating "proceed" and signing the Requirements Review Report.

9 Supporting Artifacts

This section identifies prepared artifacts that support the Requirements Review process. The Review Leader can customize these items for his or her project as necessary.

9.1 Requirements Review Action Log

This artifact is used to record and track all issues and risks and respective resolution actions throughout the review process. The template is a Microsoft Excel workbook file. The Review Leader and/or the Recorder play a role in populating and maintaining the log throughout the review process. The log contains information including:

- Itemized list of issues and risks raised both before and during the review meeting, and if applicable, references to deliverables in which they were found
- Detailed description of issues and risks
- Risk prioritization details, including impact level and probability of occurrence
- Resolution actions that are recommended by Technical SMEs or determined by the Review Leader or Decision Maker, including description of action, action owner, and target completion date
- Action tracking information, including status (e.g. Open or Closed) and completion date, if applicable.

9.2 Requirements Review Report

This report is produced to record the outcome of the Requirements Review meeting. This artifact is a Microsoft Word file. The Review Leader initiates this report during the *Determine Issue Resolution Plan* activity. At that point, the

Review Leader should obtain the signature of the Decision Maker after he or she has solicited a vote on the review outcome. The Review Leader will complete this report as part of the *Distribute Review Results* activity.

The Requirements Review Report includes the following information:

- Name of project being reviewed, list of review team members, and list of inputs to the review (i.e. deliverables either distributed for examination before the review, or from which information was extracted for presentation and discussion during the review)
- Review objectives and whether they were met
- Summary of requirements issues and risks discussed by reviewers
- Summary of management issues and risks identified by Review Leader
- Review outcome, either "proceed" or "revise requirements and re-inspect," reflecting the concurrence of the Technical Staff attending the review
- Signature of the Decision Maker.

10 Additional References

The following sources were used as references in the preparation of this process description document.

- "Standard for Software Reviews", IEEE Std. 1028-1997(R2002), Sept. 2001
- "Systems Engineering – A guide for the application of ISO/EIC 15288 (System life cycle processes)", ISO/EIC TR 19760:2003, Nov. 2003
- "CMMI for Development", Version 1.2, Software Engineering Institute, Aug. 2006

SDLC Requirements Review Report

Project Name:		Meeting Date:	
Review Leader:		Meeting Start Time:	
Recorder:		Meeting End Time:	
Decision Maker:		Meeting Location:	

Reviewers (List all individuals participating, and identify the sub-organization they represent)

	Review Inputs Provided to Reviewers	Yes	No
1	Requirements Document	☐	☐
2	Interface Control Document	☐	☐
3	Test Plan	☐	☐
4	Design Document	☐	☐
5	Configuration Management Plan	☐	☐

Review Summary

Review objectives presented to Reviewers:

Summary of requirements issues and risks discussed by Reviewers:

Summary of management issues and risks identified by Review Leader:

Name and location of Requirements Review Action Log produced and maintained by Review Leader:

Review Outcome

Before adjourning the meeting, the Decision Maker must get formal concurrence on the outcome of the meeting from Reviewers and note the result below.

☐ **Proceed** – Reviewers concur that the system requirements are adequate, provided the requirements issues and risks documented in the Requirements Review Action Log are resolved as planned. Project may proceed to final approval of the Requirements Document.

☐ **Revise Requirements and Re-Inspect** – Reviewers concur that issues and risks identified in the meeting require substantial revision to the requirements. Project should remain in Requirements Definition Phase, and the Review Leader should schedule a subsequent technical review once items documented in the Requirements Review Action Log are resolved.

Decision Maker Signature	Date
_____	

SDLC 3.1 Manual

Critical Design Review Process

Table of Contents

1 Purpose of the Process

The Critical Design Review (CDR) is a formal review that evaluates the technical adequacy of the architecture and design of a system under development. The CDR is conducted live before a panel of IT subject matter experts (SMEs) who determine whether the system design can be implemented on the selected platform, accounts for all functional and technical requirements, and is consistent with the OCC Enterprise Architecture (EA).

1.1 Scope of the Process

The Critical Design Review is defined as a formal SDLC Technical Review. Technical reviews are applicable to all system development projects at OCC, but it can be tailored out of the project plan based on business needs and constraints, on the recommendation of the ITS Project Manager (ITS PM) with the approval of the PMO Program Manager (PMO PM)[1].

It is useful to note some additional characteristics of the CDR process, and about SDLC technical reviews, in general:

- The duration of a technical review will generally be several hours (two hours is ideal). A technical review should be concise and targeted. The focus among participants should be on achieving consensus on the action items that are needed to address the technical issues and risks that were identified during the meeting.
- The CDR process itself can be tailored by a project manager to suit business needs/constraints. Additional tailoring flexibilities include:
  - Modifying what materials will serve as inputs to the process
  - Modifying what content will be presented during a review
  - Changing the activities that will be conducted before, during, and after the review meeting
  - Changing the roles and assigning the participants for the review
- The CDR can be structured as a prototype demonstration, if the project approach involves iterative refinement of the design through a working prototype.

1.2 Key Definitions

- Design Risk: A condition wherein the system design will fail to adequately address a requirement from a technical perspective. All design risks identified through the CDR process must be resolved, and any rework may be formally reviewed at the discretion of the Review Leader or ITS PM of the system under review.

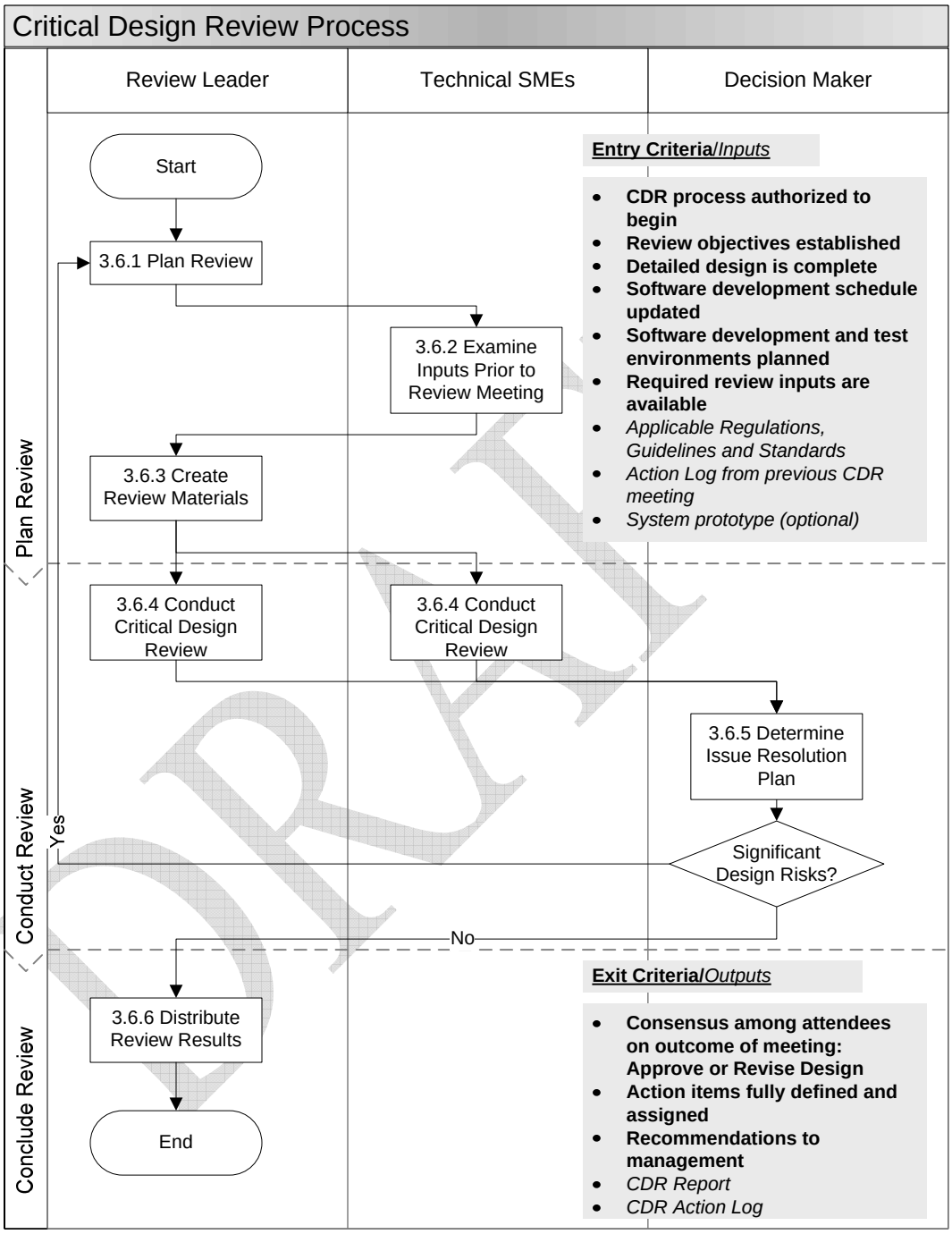
[1] See SDLC Tailoring Process, SDLC 3.0 Manual.

1.3 Preconditions

A high degree of advance planning and coordination is required to attain quality results. The following conditions should be established for a project before the CDR is conducted:

- The ITS PM and PMO PM should complete SDLC tailoring in order to formally verify whether the CDR will be included in the project's work plan.
- The ITS PM and PMO PM should include time and resource requirements for the full CDR process when estimating the project schedule.
- When the baseline work plan is complete, the ITS PM should have a kick-off meeting with stakeholders in ITS. The ITS PM should provide estimated dates for the CDR if it is tailored into the plan.
- The ITS PM should work with the ITS Quality Management (ITS QM) department to communicate and/or train ITS personnel on how to provide effective feedback, before and during the technical review process.

2 Graphical Overview of the Process



3 Entry Criteria

Entry criteria include:

- ITS PM and PMO PM have authorized the CDR process to begin
- Review objectives are established
- Detailed design is complete, including (as applicable): software, hardware, network/communications and data architectures; user interface; external system interfaces; and system controls
- Software development schedule is updated
- Software development and test environments have been planned
- Deliverables – unless waived or consolidated by an approved tailoring plan – are available as inputs, including:
  - Design Document
  - Interface Control Document
  - Data Management Plan
  - Functional Requirements Document
  - Requirements Document
  - Configuration Management Plan.

4 Process Inputs

Inputs include:

- Statement of objectives for the review
- Relevant regulations, standards, and guidelines against which the design is to be evaluated from relevant information management areas such as Enterprise Architecture, Data Management, Information Security, Configuration Management, Acquisitions, Quality Management, Section 508, Technical Infrastructure, and IT Operations
- Information from project deliverables, including:
  - High-level and detailed system design from *Design Document*
  - Detail of system interfaces from *Interface Control Document*
  - Requirements Traceability Matrix from *Requirements Document*
  - Current development schedule and overview of development environment from *Project Management Plan*
  - Current test schedule and overview of test environment from *Test Plan*
  - Overview of software configuration management approach from *Configuration Management Plan*
  - Current lists of anomalies, issues, or risks, from project management or quality assurance records
- Action Log from previous CDR meeting, if significant design issues or risks were found and subsequently corrected
- System prototype (optional).

5 Activities

The CDR process consists of three general stages, with activities conducted before, during, and after the review. This section provides detail about each activity including a brief description of its purpose, a summary of roles, a list of tasks, and references to artifacts supporting the activity.

5.1 Plan Review (WBS 3.6.1)

This step ensures that the objectives and agenda for the CDR meeting are established, the participants are identified and confirmed, and the inputs are prepared for distribution. This activity should be conducted well in advance (e.g. at least two weeks before the desired meeting date) to allow adequate time for preparation and scheduling.

The Review Leader fills the primary role, performing the following tasks:

- Collect CDR inputs from development Project Team Members and prepare artifacts to facilitate examination by reviewers
- Develop and document CDR objectives and review procedures, including criteria for examining inputs and logging design issues and risks
- Determine individual review participants and assign to CDR roles; if a conflict prevents an individual from participating, he or she should assign an alternative representative or proxy
- Schedule meeting and announce details to participants
- Distribute CDR inputs and supporting artifacts to participants for examination.

5.2 Examine Inputs Prior to Review Meeting (WBS 3.6.2)

This step establishes a common understanding of the system design among participants, and serves to document issues and risks that reviewers want to discuss during the review meeting. This activity should be conducted with enough lead-time before the review to give reviewers adequate time to go through inputs and formulate topics for discussion.

The following roles perform these tasks:

- Technical SMEs individually examine CDR inputs, record issues and risks based on their area of technical expertise, and return feedback to the Review Leader
- The Review Leader consolidates the examination results, using the CDR Action Log template.

5.3 Create Review Materials (WBS 3.6.3)

This step accounts for the organization of material for the review meeting. This activity should be conducted before the review meeting.

The Review Leader performs these tasks:

- Prepare CDR briefing by leveraging meeting objectives, CDR inputs, and examination results from Technical SMEs
- Meet to examine review materials and finalize meeting procedures with individual assigned to Decision Maker role
- Provide Project Team Members with review materials, allowing them to address or develop responses to issues and risks raised by Technical SMEs when they examined the inputs.

5.4 Conduct Critical Design Review (WBS 3.6.4)

This step ensures that system design details are presented to Technical SMEs, in order to elicit issues and risks with the design, development plan, or other attributes of the project.

Participants perform the following tasks:

- Review Leader and Decision Maker call meeting to order and present procedures plus meeting objectives
- Review Leader coordinates the presentation of the system design briefing, highlighting topics raised by Technical SMEs during pre-examination of inputs
- Technical SMEs provide comment and feedback, elaborating on existing issues and risks, as well as identifying additional ones
- Review Leader and Decision Maker provide guidance, as necessary, while the meeting is in progress; any topics needing closure before the meeting ends are reviewed before the meeting is adjourned
- Review Leader or an assigned Recorder records meeting minutes
- Review Leader or Recorder populates the Action Log with issues and risks raised during the discussion
- Review Leader obtains clarification from Technical SMEs as needed.

5.5 Determine Issue Resolution Plan (WBS 3.6.5)

This step establishes actionable plans for resolving system design issues and risks that are recorded during the review meeting. This activity should be conducted before the meeting is adjourned.

Participants collaborate on these tasks as follows:

- Review Leader leads attendees through a review of items documented in the Action Log; for each item classified as a design risk (meaning it is an event that has not yet occurred), the group will prioritize each risk by impact and

probability; resolution actions, action owners, and target completion dates should be assigned to each line item
- Review Leader references "significant design risk" criteria in order to help determine if any issues qualify*
- Decision Maker provides concurrence – and authority if needed – for risk categorization/prioritization and resolution planning
- If necessary, Review Leader postpones resolution planning for any issues or risks on which the audience concurs more information is required from members of staff not present; relevant follow-up actions must be noted
- If necessary, Review Leader identifies any issues or risks needing to be deferred to senior management for resolution
- Review Leader or Recorder documents the discussion by populating the Action Log and CDR Report
- Review Leader determines the conclusion of the meeting and cedes the floor to the Decision Maker
- Decision Maker formally closes the meeting by reviewing the CDR Report with attendees, soliciting concurrence on the final disposition of the outcome, and signing the Report.

* Note: If any risks raised pose a "significant design risk," then the Decision Maker can choose to recommend that the project team halt its progress in order to fix the design flaws and re-validate the design before proceeding. This condition requires the project team to redo the CDR process, once the design adjustments have been made and documented.

5.6 Distribute Review Results (WBS 3.6.6)

This step accounts for the distribution of meeting outputs to project stakeholders. It ensures there is a common understanding of action items and key milestones needed to conclude Design Phase activities, in order to proceed into the next life cycle phase, Development. This activity should be conducted after the review meeting is adjourned. Note that it is the responsibility of the Review Leader, working with the project manager(s) as necessary, to track all action items on the completed Action Log through to completion after the CDR process concludes.

The Review Leader, with the assistance of Recorder, completes the following tasks:

- Finalizes the meeting minutes and Action Log
- Distributes review outputs and verifies receipt by all participants.

6 Process Roles

Roles, potential actors, and responsibilities are shown in the table below. Note that several roles are listed as alternative roles. The Review Leader should

determine whether or not to include these roles, depending on the scope and content of the planned review.

Role Name/Definition	**Potential Actors**	**Responsibilities**
Decision Maker: Represents the primary interest of the business customer for the system being developed.	▪ TiCAB Chair	▪ Work with SMEs to achieve concurrence on topics raised during review ▪ Approve the review outcome
Review Leader: Represents the interest of all CDR participants, by ensuring that they have an opportunity to fulfill their roles during the meeting.	▪ Independent Facilitator ▪ PMO Program Manager ▪ ITS Project Manager	▪ Coordinate all activities ▪ Lead and facilitate the review meeting ▪ Review and approve all artifacts supporting the process
Recorder (optional): The individual assigned to document the events and outcomes of the meeting.	▪ Project Team Assistant	▪ Document all activities using relevant artifacts
Technical SME: Represents ITS by evaluating the technical adequacy and risk profile of the design, as presented.	▪ Enterprise Architecture ▪ Data Management ▪ Information Security ▪ Configuration Management ▪ Section 508 ▪ Systems Engineering and Operations ▪ Enterprise Support Services ▪ Data Center & Server Operations ▪ Telecommunications ▪ Technical Support ▪ Desktop Engineering ▪ Infrastructure Compliance	▪ Review CDR inputs ▪ Attend CDR meeting ▪ Submit issues, risks and recommendations
<Alternate Role> Management Staff: Represents the agency as a whole.	▪ ITS Senior Management ▪ PMO Senior Management	▪ Attend CDR meeting
<Alternate Role> Project Team Members: Individuals from the project team of the system under development.	▪ PMO Program Manager ▪ ITS Project Manager ▪ Systems Engineers ▪ Software Developers ▪ Database Designer ▪ Test Personnel	▪ Address design issues and risks raised before the CDR meeting ▪ Attend CDR meeting ▪ Present relevant design topics at CDR meeting ▪ Answer questions for audience members at CDR meeting

Role Name/Definition	**Potential Actors**	**Responsibilities**
<Alternate Role> Customer or User Representative: Represents the business customer for the system being developed.	▪ Business Unit representatives	▪ Attend CDR meeting

7 Process Outputs

Outputs include:

- CDR Report
- CDR Action Log.

8 Exit Criteria

Exit criteria include:

- Consensus among Technical SMEs that the critical design meets all functional requirements and is complete, logical, and verifiable through testing
- Consensus among Technical SMEs that the system/software development and test environment plans are sufficient to proceed into development and testing
- All design issues and risks identified by review participants have been documented with specific resolution plans (i.e., action items, owners, and target dates)
- Decision Maker determines that all issues and risks elicited through the CDR have been recorded with sufficient detail for resolution
- Decision Maker has accepted the level of risk inherent in the design, and has approved the project to continue into development, by indicating “approve” and signing the CDR Report.

9 Supporting Artifacts

This section identifies prepared artifacts that support the CDR process. The Review Leader can customize these items for his or her project as necessary.

9.1 CDR Action Log

This artifact is used to record and track all issues and risks and respective resolution actions throughout the CDR process. The template is a Microsoft Excel workbook file. The Review Leader and/or the Recorder play a role in populating and maintaining the log throughout the CDR process. The log contains information including:

- Itemized list of issues and risks raised both before and during the CDR meeting, and if applicable, references to deliverables in which they were found
- Detailed description of issues and risks
- A field permitting categorization of each line item as a "design risk," meaning it is an event that has not yet occurred, and which fails to adequately address a requirement from a technical perspective
- Risk prioritization details, including impact level and probability of occurrence
- Resolution actions that are recommended by Technical SMEs or determined by the Review Leader or Decision Maker, including description of action, action owner, and target completion date
- Action tracking information, including status (e.g. Open or Closed) and completion date, if applicable.

9.2 CDR Report

The CDR Report is produced to record the outcome of the CDR meeting. This artifact is a Microsoft Word file. The Review Leader initiates the CDR report during the *Determine Issue Resolution Plan* activity. At that point, the Review Leader should the signature of the Decision Maker after he or she has solicited a vote on the review outcome. The Review Leader will complete this report as part of the *Distribute Review Results* activity.

The CDR Report includes the following information:

- Name of project being reviewed, list of review team members, and list of inputs to the review (i.e. deliverables either distributed for examination before the review, or from which information was extracted for presentation and discussion during the review)
- Review objectives and whether they were met
- Summary of design issues and risks discussed by reviewers
- Summary of management issues and risks identified by Review Leader
- Review outcome, either "proceed" or "revise design and re-inspect," reflecting the concurrence of the Technical Staff attending the review
- Signature of the Decision Maker.

10 Additional References

The following sources were used as references in the preparation of this process description document.

- IEEE Std. 1028-1997(R2002), "IEEE Standard for Software Reviews."
- "Specifying Initial Design Review (IDR) and Final Design Review (FDR) Criteria," Mary Ann Lapham, Carnegie Mellon University – Software Engineering Institute, 2006.

- "Design Review Process Description," U.S. Department of Housing and Urban Development, Public and Indian Housing – Information Technology, Feb.2007.

SDLC Critical Design Review Report

Project Name:		CDR Meeting Date:	
Review Leader:		Meeting Start Time:	
Recorder:		Meeting End Time:	
Decision Maker:		Meeting Location:	

Reviewers		IT Organization
1		
2		
3		
4		
5		
6		
7		

Review Inputs Provided to Reviewers		Yes	No
1	Design Document	☐	☐
2	Interface Control Document	☐	☐
3	Requirements Document	☐	☐
4	Project Management Plan	☐	☐
5	Test Plan	☐	☐
6	Configuration Management Plan	☐	☐

Review Summary

Review objectives presented to reviewers:

Summary of design issues and risks discussed by reviewers:

Summary of management issues and risks identified by review leader:

Name and location of Action Log produced and maintained by review leader:

Review Outcome

Before adjourning the meeting, the Decision Maker must get formal concurrence on the outcome of the meeting from Reviewers and note the result below.

☐ **Proceed** – Reviewers concur that the system design is adequate, provided the design issues and risks documented in the CDR Action Log are resolved as planned. Project may proceed into Development Phase.

☐ **Revise Design and Re-inspect** – Reviewers concur that design issues and risks identified in the meeting require substantial revision to the system design. Project should remain in Design Phase, and the Review Leader should schedule a subsequent CDR once items documented in the CDR Action Log are resolved.

Decision Maker Signature	Date
_____	

Consistent, repeatable processes...predictable results

SDLC 3.1 Manual

Release Readiness Review Process

Table of Contents

1 Purpose of the Process

The Release Readiness Review, also referred to as "Go or No Go," ensures that the system is ready for deployment. Specifically, it verifies that the system has passed all testing, implementation planning is adequate, and deployment risks are within an acceptable range. The focus of the process is a review meeting conducted live before a panel of IT subject matter experts (SME) in order to uncover and address issues not sufficiently addressed in the systems development project documentation up to that point.

1.1 Scope of the Process

The Release Readiness Review is defined as a formal SDLC Technical Review. Technical reviews are applicable to all system development projects at OCC, but can be tailored out of the project plan based on business needs and constraints, on the recommendation of the ITS Project Manager (ITS PM) with the approval of the PMO Program Manager (PMO PM)[1].

It is useful to note some additional characteristics of the Release Readiness Review process, and about SDLC technical reviews, in general:

- The duration of a technical review will generally be several hours (two hours is ideal). A technical review should be concise and targeted. The focus among participants should be on achieving consensus on the action items that are needed to address the technical issues and risks that were identified during the meeting.
- The Release Readiness Review process itself can be tailored by a project manager to suit business needs/constraints. Additional tailoring flexibilities include:
  - Modifying what materials will serve as inputs to the process
  - Modifying what content will be presented during a review
  - Changing the activities that will be conducted before, during, and after the review meeting
  - Changing the roles and assigning the participants for the review.

1.2 Preconditions

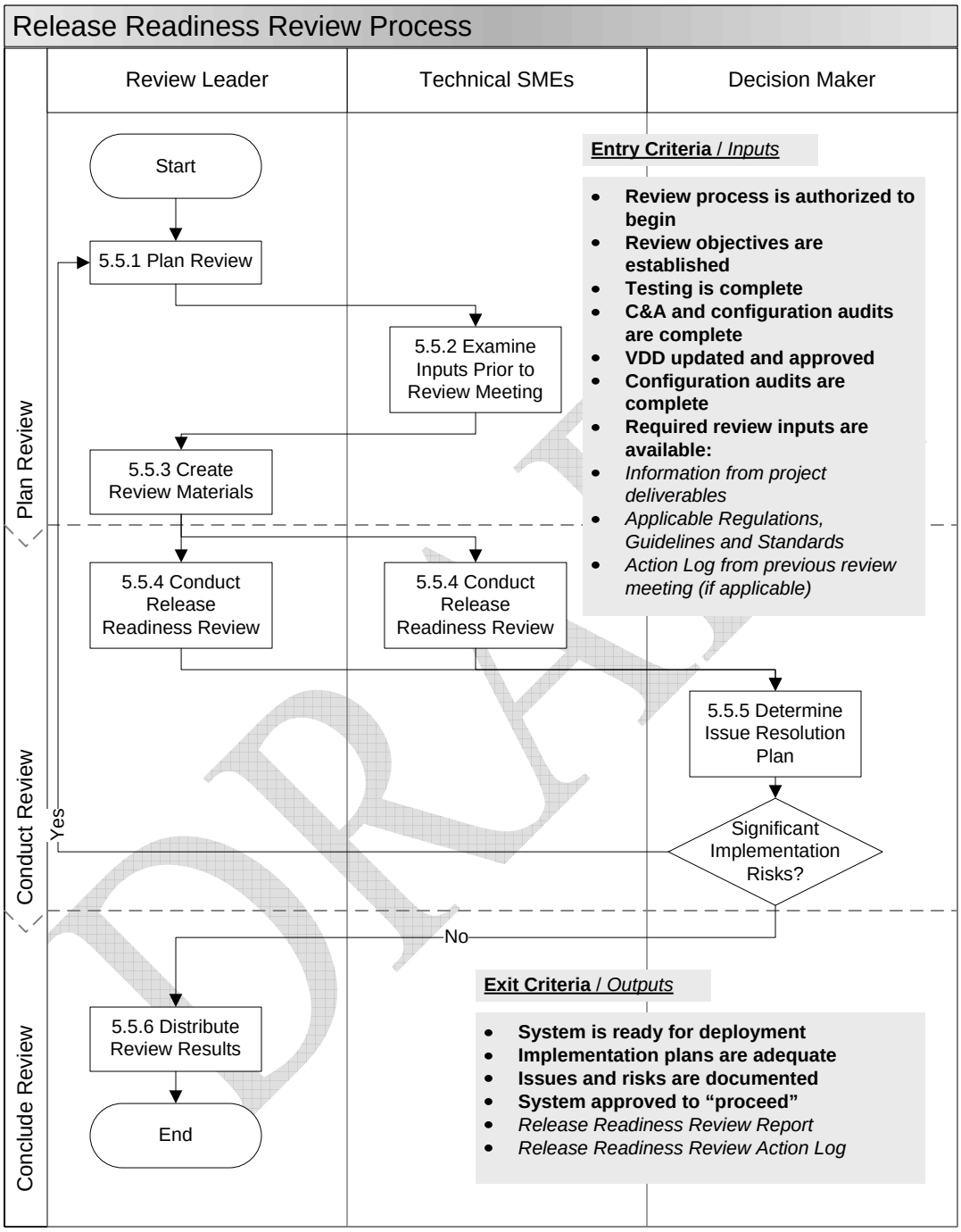
A high degree of advance planning and coordination is required to attain quality results. The following conditions should be established for a project before any Technical Review is conducted:

- The ITS PM and PMO PM should complete SDLC tailoring in order to formally verify whether the Release Readiness Review will be included in the project's work plan.

[1] SDLC Tailoring Process, SDLC Manual.

- The ITS PM and PMO PM should include time and resource requirements for the full technical review process when estimating the project schedule.
- When the baseline work plan is complete, the ITS PM should have a kick-off meeting with stakeholders in ITS. The ITS PM should provide estimated dates for the Release Readiness Review if it is tailored into the plan.
- The ITS PM should work with the ITS Quality Management (ITS QM) department to communicate and/or train ITS personnel on how to provide effective feedback, before and during the technical review process.

2 Graphical Overview of the Process



3 Entry Criteria

Entry criteria include:

- ITS PM and PMO PM have authorized the review process to begin
- Review objectives are established
- Testing is complete, according to approved Test Plan
- The system has been certified and accredited (see ISO)
- The Version Description Document is updated and has been approved by CM
- Audits of the functional and physical configuration are complete

4 Process Inputs

Inputs include:

- Statement of objectives for the review
- Relevant regulations, standards, and guidelines that may influence implementation from relevant information management areas such as Enterprise Architecture, Data Management, Information Security, Configuration Management, Acquisitions, Quality Management, Section 508, Technical Infrastructure, and IT Operations
- Information from project deliverables, including:
  - Overview of software configuration management approach from *Configuration Management Plan*
  - Functional, system, and operational requirements plus Requirements Traceability Matrix from *Requirements Document*
  - Overview of system design from *Design Document*
  - Overview of system interfaces from *Interface Control Document*
  - Overview of system production baseline from *Version Description Document*
  - Results of testing from *Test Plan* and associated test analysis reports
  - System security profile and security requirements from *Certification and Accreditation Documentation*
  - Overview of implementation procedures, including back out procedures, from *Implementation Plan*
  - Overview of system conversion procedures, including strategies for data conversion, from *System Conversion Plan*
- Action Log from previous Release Readiness Review meeting, if significant issues or risks were found and subsequently corrected.

5 Activities

The technical review process consists of three general stages, with activities conducted before, during, and after the review. This section provides detail about each activity in a Release Readiness Review including a brief description of its purpose, a summary of roles, a list of tasks, and references to artifacts supporting the activity.

5.1 Plan Review (WBS 5.5.1)

This step ensures that the objectives and agenda for the Release Readiness Review meeting are established, the participants are identified and confirmed, and the inputs are prepared for distribution. This activity should be conducted well in advance (e.g., at least two weeks before the desired meeting date) to allow adequate time for preparation and scheduling.

The Review Leader fills the primary role, performing the following tasks:

- Collect review inputs from development Project Team Members and prepare artifacts to facilitate examination by reviewers
- Develop and document review objectives and procedures, including criteria for examining inputs and logging issues and risks
- Determine individual review participants and assign to review roles; if a conflict prevents an individual from participating, he or she should assign an alternative representative or proxy
- Schedule meeting and announce details to participants
- Distribute inputs and supporting artifacts to participants for examination.

5.2 Examine Inputs Prior to Review Meeting (WBS 5.5.2)

This step establishes a common understanding of the system test results and implementation plan among participants, and serves to capture issues and risks that reviewers want to discuss during the review meeting. This activity should be conducted with enough lead-time before the review to give reviewers adequate time to go through inputs and formulate topics for discussion.

The following roles perform these tasks:

- Technical SMEs individually examine review inputs, record issues and risks based on their area of technical expertise, and return feedback to the Review Leader
- The Review Leader consolidates the examination results, using the Release Readiness Review Action Log template.

5.3 Create Review Materials (WBS 5.5.3)

This step accounts for the organization of material for the review meeting. This activity should be conducted before the review meeting.

The Review Leader performs these tasks:

- Prepare review briefing by leveraging meeting objectives, inputs, and examination results from Technical SMEs
- Meet to examine review materials and finalize meeting procedures with individual assigned to Decision Maker role
- Provide Project Team Members with review materials, allowing them to address or develop responses to issues and risks raised by Technical SMEs when they examined the inputs.

5.4 Conduct Release Readiness Review (WBS 5.5.4)

This step ensures that review materials are presented to Technical SMEs, in order to elicit concurrence with test results, implementation plan, or other attributes of the project.

Participants perform the following tasks:

- Review Leader and Decision Maker call meeting to order and present procedures plus meeting objectives
- Review Leader coordinates the presentation of the Release Readiness Review briefing
- Technical SMEs analyze review materials to assess whether testing was successful and reflective of the system's performance in the production environment; to determine the adequacy of implementation plan and system conversion procedures; and to concur that the system has met security requirements.
- Technical SMEs provide comment and feedback, elaborating on existing issues and risks, as well as identifying additional ones
- Review Leader and Decision Maker provide guidance, as necessary, while the meeting is in progress; any topics needing closure before the meeting ends are reviewed before the meeting is adjourned
- Review Leader or an assigned Recorder record meeting minutes
- Review Leader or Recorder populate the Action Log with issues and risks raised during the discussion
- Review Leader obtains clarification from Technical SMEs as needed.

5.5 Determine Issue Resolution Plan (WBS 5.5.5)

This step establishes actionable plans for resolving issues and risks that are recorded during the review meeting. This activity should be conducted before the meeting is adjourned.

Participants collaborate on these tasks as follows:

- Review Leader leads attendees through a review of items documented in the Action Log; for each item classified as a risk (meaning it is an event that has not yet occurred), the group will prioritize each risk by impact and probability; resolution actions, action owners, and target completion dates should be assigned to each line item
- Decision Maker provides concurrence – and authority if needed – for risk categorization/prioritization and resolution planning
- If necessary, Review Leader postpones resolution planning for any issues or risks on which the audience concurs more information is required from members of staff not present; relevant follow-up actions must be noted
- If necessary, Review Leader identifies any issues or risks needing to be deferred to senior management for resolution

- Review Leader or Recorder documents the discussion by populating the Action Log and Review Report
- Review Leader determines the conclusion of the meeting and cedes the floor to the Decision Maker
- Decision Maker formally closes the meeting by reviewing the Review Report with attendees, soliciting concurrence on the final disposition of the outcome, and signing the Report.

5.6 Distribute Review Results (WBS 5.5.6)

This step accounts for the distribution of meeting outputs to project stakeholders. It ensures there is a common understanding of action items and key milestones needed to complete Test Phase activities, in order to proceed into the next life cycle phase, Implementation. This activity should be conducted after the review meeting is adjourned. Note that it is the responsibility of the Review Leader, working with the project manager(s) as necessary, to track all action items on the completed Action Log through to completion after the review process concludes.

The Review Leader, with the assistance of Recorder, completes the following tasks:

- Finalize the meeting minutes and Action Log
- Distribute review outputs and verify receipt by all participants.

6 Process Roles

Roles, potential actors, and responsibilities are shown in the table below. Note that several roles are listed as alternative roles. The Review Leader should determine whether or not to include these roles, depending on the scope and content of the planned review.

Role Name/Definition	**Potential Actors** (not a complete list)	**Responsibilities**
Decision Maker: Represents the primary interest of the business customer for the system being developed.	*Assign one individual:* ▪ Business Sponsor ▪ ITS Senior Manager	▪ Work with SMEs to achieve concurrence on topics raised during review ▪ Approve the review outcome
Review Leader: Represents the interest of all review participants, by ensuring that they have an opportunity to fulfill their roles during the meeting.	*Assign one individual:* ▪ PMO Program Manager ▪ ITS Project Manager ▪ Independent third-party, outside of project team	▪ Acts as independent facilitator ▪ Coordinate all activities ▪ Lead and facilitate the review meeting ▪ Review and approve all artifacts supporting the process

Role Name/Definition	**Potential Actors** (not a complete list)	**Responsibilities**
Recorder (optional): The individual assigned to document the events and outcomes of the meeting.	*Assign one individual:* ▪ Project Team Assistant	▪ Document all activities using relevant artifacts
Technical SME: Represents ITS by evaluating the technical adequacy and risk profile of the implementation plan, as presented.	*Assign multiple individuals, as needed:* ▪ Enterprise Architecture ▪ Data Management ▪ Information Security ▪ Configuration Management ▪ Section 508 ▪ Systems Engineering and Operations ▪ Enterprise Support Services ▪ Data Center & Server Operations ▪ Telecommunications ▪ Technical Support ▪ Desktop Engineering ▪ Infrastructure Compliance	▪ Review inputs ▪ Attend review meeting ▪ Submit issues, risks and recommendations
<Alternate Role> Management Staff: Represents the agency as a whole.	*Assign multiple individuals, as needed:* ▪ ITS Senior Management ▪ PMO Senior Management	▪ Attend review meeting
<Alternate Role> Project Team Members: Individuals from the project team of the system under development.	*Assign multiple individuals, as needed:* ▪ PMO Program Manager ▪ ITS Project Manager ▪ Systems Engineers ▪ Software Developers ▪ Database Designer ▪ Test Personnel	▪ Address issues and risks raised before the review meeting ▪ Attend review meeting ▪ Present relevant topics at review meeting ▪ Answer questions for audience members at review meeting
<Alternate Role> Customer or User Representative: Represents the business customer for the system being developed.	*Assign multiple individuals, as needed:* ▪ Business Unit representatives	▪ Attend review meeting

7 Process Outputs

Outputs include:

- Meeting minutes
- Release Readiness Review Report
- Release Readiness Review Action Log.

8 Exit Criteria

Exit criteria include:

- Consensus among Technical SMEs that the system performs the required function in the production environment
- Consensus among Technical SMEs that plans for implementation are complete and adequate for the system.
- All issues and risks identified by review participants have been documented with specific resolution plans (i.e., action items, owners, and target dates)
- Decision Maker determines that all issues and risks elicited through the review have been recorded with sufficient detail for resolution
- Decision Maker has accepted the meeting outcomes and has authorized the project to continue to deployment, by indicating "proceed" and signing the Release Readiness Review Report.

9 Supporting Artifacts

This section identifies prepared artifacts that support the Release Readiness Review process. The Review Leader can customize these items for his or her project as necessary.

9.1 Release Readiness Review Action Log

This artifact is used to record and track all issues and risks and respective resolution actions throughout the review process. The template is a Microsoft Excel workbook file. The Review Leader and/or the Recorder play a role in populating and maintaining the log throughout the review process. The log contains information including:

- Itemized list of issues and risks raised both before and during the review meeting, and if applicable, references to deliverables in which they were found
- Detailed description of issues and risks
- Risk prioritization details, including impact level and probability of occurrence
- Resolution actions that are recommended by Technical SMEs or determined by the Review Leader or Decision Maker, including description of action, action owner, and target completion date
- Action tracking information, including status (e.g. Open or Closed) and completion date, if applicable.

9.2 Release Readiness Review Report

This report is produced to record the outcome of the Release Readiness Review meeting. This artifact is a Microsoft Word file. The Review Leader initiates this report during the *Determine Issue Resolution Plan* activity. At that point, the Review Leader should obtain the signature of the Decision Maker after he or she

has solicited a vote on the review outcome. The Review Leader will complete this report as part of the *Distribute Review Results* activity.

The Release Readiness Review Report includes the following information:

- Name of project being reviewed, list of review team members, and list of inputs to the review (i.e. deliverables either distributed for examination before the review, or from which information was extracted for presentation and discussion during the review)
- Review objectives and whether they were met
- Summary of implementation issues and risks discussed by reviewers
- Summary of management issues and risks identified by Review Leader
- Review outcome, either "proceed" or "address issues and re-inspect," reflecting the concurrence of the Technical Staff attending the review
- Signature of the Decision Maker.

10 Additional References

The following sources were used as references in the preparation of this process description document.

- "Standard for Software Reviews", IEEE Std. 1028-1997(R2002), Sept. 2001
- "Systems Engineering – A guide for the application of ISO/EIC 15288 (System life cycle processes)", ISO/EIC TR 19760:2003, Nov. 2003
- "CMMI for Development", Version 1.2, Software Engineering Institute, Aug. 2006

SDLC Release Readiness Review Report

Project Name:		Meeting Date:	
Review Leader:		Meeting Start Time:	
Recorder:		Meeting End Time:	
Decision Maker:		Meeting Location:	

Reviewers (List all individuals participating, and identify the sub-organization they represent)

	Review Inputs Provided to Reviewers	Yes	No
1	Configuration Management Plan	☐	☐
2	Requirements Document	☐	☐
3	Interface Control Document	☐	☐
4	Design Document	☐	☐
5	Version Description Document	☐	☐
6	Test Plan and Report	☐	☐
7	Certification and Accreditation Documentation	☐	☐
8	Implementation Plan	☐	☐
9	System Conversion Plan	☐	☐

Review Summary

Review objectives presented to Reviewers:

Summary of implementation issues and risks discussed by Reviewers:

Summary of management issues and risks identified by Review Leader:

Name and location of Release Readiness Review Action Log produced and maintained by Review Leader:

Review Outcome

Before adjourning the meeting, the Decision Maker must get formal concurrence on the outcome of the meeting from Reviewers and note the result below.

☐ **Proceed** – Reviewers concur that the system is ready for implementation, provided the issues and risks documented in the Release Readiness Review Action Log are resolved as planned. Project may proceed to final approval of the Implementation Plan.

☐ **Address Issues and Re-Inspect** – Reviewers concur that issues and risks identified in the meeting require substantial action by the development and/or test team(s). Project should remain in Test Phase, and the Review Leader should schedule a subsequent technical review once items documented in the Release Readiness Review Action Log are resolved.

Decision Maker Signature	Date
_____	

SDLC Deliverable Review Report

This Report completes the Deliverable Review process, officially documenting the results of the review. The Report is completed by the Project Manager and retained as part of the official project documentation.

Project Name:		**Document Title:**	
Review Date:		**Document Version:**	

	Reviewers	**IT Organization**
1		
2		
3		
4		
5		
6		
7		

Review Summary

Summary of issues, recommendations, and action items from the deliverable review.

Review Disposition

Before concluding the deliverable review, the Project Manager must get formal concurrence on the outcome of the review from Reviewers and note the result below.

- ☐ **Accept** – The deliverable is acceptable
- ☐ **Accept with minor rework** – The deliverable is acceptable with minor rework
- ☐ **Do not accept** – The deliverable is not acceptable and needs significant rework

Additional Comments

Project Manager (print name)	**Signature**	**Date**
_____	_____	_____

Project Name

Project Management Plan

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Explain the purpose of the PMP among the documents defining the project management processes to be followed. For example, if this document supplements other project management documents to be used, explain the specific function of the PMP document.

1.2 Project Background

Briefly describe any background information that is needed to understand the project. For example, explain business process(es) the new or modified system will support and key system functions. Include a summary of goals and objectives for this project.

1.3 Stakeholders

Identify both internal and external project stakeholders, including key positions such as Program/Project Manager(s), Sponsor(s), End Users, interested third parties, etc. Use a tabular format to provide details (organization, project role, contact info).

1.4 Document References

Identify documents that supplement the PMP. A listing may include other documents produced at project initiation, such as a Project Charter, Work Breakdown Structure (WBS), Integrated Master Schedule (IMS), Risk Management Plan (RMP), etc.

2 Assumptions and Constraints

2.1 Assumptions

Identify assumptions about the project management plan that are outside the control of this project. Describe those things that may influence the ability to complete the work and project milestones according to the planned approach and schedule.

2.2 Constraints

Identify the constraints imposed on this project management plan because of conditions beyond the control of the project. Relevant constraints may include availability or staff and other resources, dependencies with other projects, etc.

3 Project Organization and Responsibilities

Identify the individuals and organizations involved in the project. Describe their roles, responsibilities, start and end dates. Include team structures and reporting responsibilities. Use diagrams or matrices, as applicable.

3.1 Contractors and Subcontractors

Identify any contractors or subcontractors supporting the project. Provide references to procedures that will be used to manage contractual agreements, if documented under Project Approach. Add document references in the introduction, if needed.

4 Project Approach

Define the management and technical processes governing the project including initiation, planning, execution, control, and close-out. As applicable, relate the project management approach to the life cycle development methodology to be used.

4.1 Management Processes

Identify management processes that will be used to govern the project (examples follow below). List all applicable processes. If defined in other documents, place document references in the introduction.

4.1.1. Project Scheduling

This is a recommended process. Specify how project schedules will be estimated, baselined, updated, etc. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.1.2. Project Tracking

This is a recommended process. Specify how project progress will be tracked. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.1.3. Process Name [Process n]

Provide descriptions for additional processes, as needed.

4.2 Technical Processes

Identify technical management processes that will be used to govern the project (examples follow below). List all applicable processes. If defined in other documents, place document references in the introduction.

4.2.1. Requirements Management

This is a recommended process. Specify how project requirements will be generated, maintained, tracked, changed, etc. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.2.2. Data Management

This is a recommended process. Specify how all data generated by the project will be classified, maintained, changed, etc. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.2.3. Records Management

This is a recommended process. Specify how information subject to applicable records management policies will be maintained. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.2.4. Process Name [Process n]

Provide descriptions for additional processes, as needed. Alternatives include processes for design, development, testing, release, etc.

4.3 Project Controls

Identify project control processes that will be used on this project. This would include a description of reporting requirements, a list of formal reviews to be conducted, issue and anomaly tracking procedures, etc.

4.3.1. Reporting

This is a recommended process. Specify how project information will be reported. Identify report formats, what steps will be followed, and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.3.2. Formal Reviews

This is a recommended process. Specify what formal reviews will be conducted. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.3.3. Issue and Anomaly Tracking

This is a recommended process. Specify how issues and anomalies of all types will be identified, tracked, and addressed. Identify what steps will be followed and what actors participate. Attach detailed procedures in the appendix, if applicable.

4.3.4. Process Name [Process n]

Provide descriptions for additional processes, as needed.

4.4 Project Transition Processes

Identify processes that will govern key project transitions during the project life cycle. If this information will be maintained in other documents, place document references in the introduction.

4.4.1. Transition to Operations and Maintenance Phase

Describe plans for coordinating the handover of the system to Operations and Maintenance Phase support resources. Identify relevant details by referencing other elements of this PMP, including project organization, schedule, reviews, etc.

4.4.2. Transition to Disposition Phase

Describe plans for coordinating an orderly disposal of the system, if the Disposition Phase is triggered. Identify relevant

details by referencing other elements of this PMP, including project organization, schedule, reviews, etc.

4.4.3. [Transition n]

Provide descriptions for additional transitions, as needed.

5 Project Work Plan

5.1 SDLC Tailoring

Describe the outcome of SDLC tailoring activities. Attach the completed SDLC Tailoring Checklist in the Appendix and reference here, as appropriate.

5.2 Work Breakdown Structure

Provide the summary Work Breakdown Structure (WBS) for the system development effort. According to the project approach described above and the results of tailoring, identify the high-level hierarchy of work products to be produced.

5.3 Project Milestones and Schedule

For the WBS identified, identify the major milestones and their dates, as appropriate. Relevant milestones include all formal Deliverable or Technical Reviews tailored into the project work plan. Reference a project schedule, if maintained separately.

6 Acceptance Criteria

State the criteria for successful project completion and OCC acceptance. List formal reviews tailored into the project plan, referencing control processes identified previously. Include performance criteria where applicable. Identify approval authorities.

7 Project Engineering Environment

This section should identify applicable engineering environments that will be established and maintained to support the full SDLC, including Operations and Maintenance. Identify equipment, facilities, standards, procedures, and tools.

7.1 Development Environment

Describe the environment that will be established and maintained for system development. Identify technical details as well as roles and responsibilities. If documented elsewhere, provide a reference.

7.2 Test Environment

Describe the environment that will be established and maintained for system testing. Identify technical details as well as roles and responsibilities. If documented elsewhere, provide a reference.

7.3 Staging Environment

Describe the environment that will be established and maintained for staging system releases prior to production release. Identify technical details as well as roles and responsibilities. If documented elsewhere, provide a reference.

7.4 Production Environment

Describe the environment that will be established and maintained to support ongoing operations and maintenance. Identify technical details as well as roles and responsibilities. If documented elsewhere, provide a reference.

7.5 Environment Name [environment n]

Identify and describe additional environments, as needed. Provide references to other documents, as applicable.

8 Risk Management Strategies

Note: This section may be omitted if the project risk management approach is available in other documents.

8.1 Risk Management Approach

Specify any pertinent details of a risk management approach being applied to this project. Identify processes and procedures to be used by project personnel, as applicable.

8.2 Project Risk Summary

Identify, assess, and rank potential risks to the system development project. Describe existing plans to mitigate these risks. Reference other related project risk assessments, as applicable.

9 Quality Assurance Strategies

Describe project quality assurance methods. Specify project reviews and audits and explain how they will be conducted. Note: This section may be omitted if a separate Quality Assurance Plan is maintained for this project.

10 Configuration Management Strategies

Describe project configuration management methods. Specify methods for controll, tracking, implementing, and reporting changes. Note: Omit this section if a separate CM Plan is maintained for this project.

Attachment A—Acronyms and Abbreviations

Provide business terms unique to the system as well as the acronyms and abbreviations used in the document.

Attachment B—<Other>

Add attachments (or appendices) as needed. These can include completed tailoring forms, descriptions of the development approach/methodology, management or technical procedures to be followed, etc.

SDLC Project Management Plan Checklist					
Project Name:		**Version:**			
This checklist is provided as an aid to check the consistency and completeness of the Project Management Plan. This checklist is recommended for use by authors and reviewers.					
Project Management Plan			**Yes**	**No**	**N/A**
Has the project background been described?			☐	☐	☐
Are the project goals and objectives stated?			☐	☐	☐
Are project stakeholders identified, both internal and external to the project?			☐	☐	☐
Are project assumptions and constraints identified?			☐	☐	☐
Are project assumptions and constraints linked to scope, schedule, cost, resources, risks, and other primary project attributes?			☐	☐	☐
Is the project organizational structure presented?			☐	☐	☐
Are the project roles and responsibilities defined?			☐	☐	☐
Are project management processes identified?			☐	☐	☐
Are project technical management processes identified?			☐	☐	☐
Are project controls identified?			☐	☐	☐
Is a process identified for conducting the transition to Operations and Maintenance?			☐	☐	☐
Is a process identified for conducting the transition to Disposition?			☐	☐	☐
Is a tailored work pattern provided, along with justification for the specified tailoring?			☐	☐	☐
Is a summary Work Breakdown Structure provided?			☐	☐	☐
Are the project deliverables specified?			☐	☐	☐
Is the project schedule including major milestones provided?			☐	☐	☐
Are project acceptance criteria identified and described?			☐	☐	☐
Is the project risk management approach identified?			☐	☐	☐
Are the project risks identified?			☐	☐	☐
Have risk mitigation strategies been described for reach risk identified?			☐	☐	☐
Are the project engineering environments identified and described?			☐	☐	☐
Have project Configuration Management strategies been described?			☐	☐	☐
Have project Quality Assurance strategies been described?			☐	☐	☐
Comments:					

Project Name

Configuration Management Plan

Version X.X

Table of Contents

1 Introduction

Provide a brief statement that introduces the Configuration Management (CM) plan and describes, in general terms, its use in managing the configuration of the specific project, or system. Configuration Management is a uniform practice for managing system software, hardware and documentation changes throughout the development project.

1.1 Purpose

Describe why this Configuration Management plan was created, what it accomplishes, and how it is used.

1.2 Scope

Define the scope of Configuration Management planning. Identify items that will be placed under configuration control.

1.3 Project Information

Provide the name, acronym, CPIC Unique Project Name, and CPIC Unique Project Identifier, as well as any applicable details.

1.4 References

List the documents that are referenced to support the Configuration Management process including any project or standards documents referenced in the body of the Configuration Management Plan.

1.5 Assumptions and Constraints

Copy the Assumptions and Constraints from the Project Management Plan.

1.6 Acronyms

List acronyms and their descriptions that are used in this document.

1.7 Definitions

List and define specific terminology used in document.

2 Configuration Management Project Organization

This section describes and graphically portrays the project's organization with emphasis on the Configuration Management activities including:

- The relationships and integration of the contractor's project organization and functional organization;
- Responsibility and authority for Configuration Management of all participating groups and organizations including their role in Configuration Management boards, and the integration of Configuration Management functions with other program activities such as technical reviews;
- Identification of the contractor’s organization and its responsibilities;
- Interfaces between the contractor’s organization and the Government, subcontractors, and associate contractors.

2.1 Configuration Management Responsibilities

The roles and responsibilities of Configuration Management personnel in each activity shall be clearly defined. If participation in informal reviews, such as walk-through, is planned, the responsibilities of personnel in these activities shall also be included in this paragraph. Responsibilities for implementing Configuration Management for the project are typically as follows: Define each role.

- Program Manager
- ITS Project Manager
- Project Team Members
- Software Configuration Control Board
- Configuration Management Group
- Contracting Officer Technical Representative (COTR)
- Contractor Project Manager
- Define the roles and responsibilities of the CM team

3 Configuration Management Methodology

This section describes the lifecycle methodology as it applies in the context of the project. The latest approved version of the Systems Development Life Cycle (SDLC) manual should be referred to for guidance.

3.1 System Development Life Cycle

Refer to the latest approved version of the SDLC manual.

3.2 Life Cycle Milestone Phases

This section describes and graphically portrays the sequence of events and milestones for implementation of Configuration Management in each phase with major program milestones and events, including as a minimum:

- Release and submittal of configuration documentation in relation to program events (e.g., technical reviews).
- Establishment of internal developmental configuration and contractual baselines.
- Implementation of internal and OCC Enterprise configuration control.
- Establishment of Configuration Control Boards.
- Implementation of a status accounting information system.
- Conduct of configuration audits

(List your milestones. The SDLC manual should be referred to for guidance).

3.3 Configuration Management Policies, Procedures, and Standards

Refer to Section 3.3.3 of the Enterprise Configuration Management Plan.

4 Configuration Management Communications Plan

This section specifies how CM will communicate changes, for projects using Configuration Management control. Use the information and guidance provided in Section 4 of the Enterprise CM Plan.

5 OCC Information and Information System Security

5.1 CM Activities for Supporting Information and Information System Security

Refer to Section 5.1 of the Enterprise CM Plan.

5.2 Baseline Configuration

Refer to Section 5.2 of the Enterprise CM Plan.

5.3 Configuration Change Control

Refer to Section 5.3 of the Enterprise CM Plan.

5.4 Monitoring Configuration Changes

Refer to Section 5.4 of the Enterprise CM Plan.

5.5 Access Restrictions for Change

Refer to Section 5.5 of the Enterprise CM Plan.

5.6 Configuration Settings

Refer to Section 5.6 of the Enterprise CM Plan.

5.7 Least Functionality

Refer to Section 5.7 of the Enterprise CM Plan.

5.8 Information System Component Inventory

Refer to Section 5.8 of the Enterprise CM Plan.

6 Configuration Management Process

Section 6 of the Enterprise CM Plan provides a tutorial on the Enterprise Configuration Management Process Model and the Configuration Management Activities Overview that support the Models

Refer to Section 6 of the Enterprise CM Plan.

7 Configuration Management Activities

7.1 Configuration Identification

Explain that Configuration Identification is the basis on which the configuration items (CIs) are defined and verified; CIs and documents are labeled; changes are managed; and accountability is maintained. Define the automated tools that will be used to track and control the configuration baselines. Describe the methods for controlling, tracking, implementing and reporting changes.

7.1.1. Naming Conventions for Configuration Items

Provide details of the file naming convention to be used on the project and how file configuration integrity will be maintained. Section 7.1.1 of the Enterprise CM Plan provides the guidance for naming conventions of configuration items.

7.1.2. Release Numbering and Identification

Refer to Section 7.1.2 of the Enterprise CM Plan.

7.1.2.1. Interface Identification

Identify the interfaces to be managed and describe the procedures for identification of interface requirements, establishment of interface agreements, and participation in any Interface Control Working Groups (ICWG).

7.1.2.2. Version Labels

Refer to Section 7.1.2.2 of the Enterprise CM Plan.

7.1.2.3. Manually Defined Version Labels

Refer to Section 7.1.2 of the Enterprise CM Plan.

7.1.2.4. CM Version Labels

Refer to Section 7.1.2.4 of the Enterprise CM Plan.

7.1.3. Configuration Management Controlled Library

This section describes the Configuration Management controlled library. Where software, documents, and deliverables may be logged and stored to ensure all configuration component masters are protected but accessible. Configuration Management Library Inventory contains a record for each inventoried item and assigns it a configuration item (CI) number. The CI number provides a means of easily tracking the item and allows an inventory list to be generated that can be used to verify that inventoried items are still intact.

Refer Section 7.1.3 of the Enterprise CM Plan for all appropriate subsections.

7.1.3.1. Configuration Management Releases

Refer to Section 7.1.4 of the Enterprise CM Plan for all appropriate subsections.

7.2 Configuration Change Control

Explain that configuration change management is a process for managing configuration changes and variances in configurations. Configuration control is the systematic proposal, justification, evaluation, coordination, approval and implementation of changes after formal establishment of a configuration baseline. Include the following:

7.2.1. Change Request Process

Refer to Section 7.2.1 of the Enterprise CM Plan for the appropriate subsections.

7.2.2. Configuration Control Boards (CCBs)

Refer to Section 7.2.2 of the Enterprise CM Plan for subsections for the appropriate CCB – and procedures. Identify the interfaces to be managed and describe the procedures for identification of interface requirements, establishment of interface agreements, and participation in any Interface Control Working Groups (ICWG).

7.2.3. Version Control

Refer to Section 7.2.3 of the Enterprise CM Plan for subsections.

7.3 Configuration Status Accounting

Describe when and how Configuration Status Accounting (CSA) is to be conducted. Refer to Section 7.3 of the Enterprise CM Plan for subsections and procedures.

7.4 Configuration Audits and Reviews

Describe how peer review audits and formal audits will be accomplished for the purpose of assessing compliance with the CM Plan. These could include baseline audit, functional configuration audit, physical configuration audit, software, and hardware physical configuration audit. Refer to Section 7.4 of the Enterprise CM Plan for subsections.

7.5 Configuration Release Management

Describe the processes in place to control the amount and number of versions documented by this CM Plan and how documents and software is turned over to CM and released from CM. Refer to Section 7.5 of the Enterprise CM Plan for subsections.

7.6 Configuration Management Planning

Refer to Section 7.6 of the Enterprise CM Plan.

8 Configuration Management Schedules

8.1 Configuration Management Schedules

(Coordination with other project activities) The schedule of most Configuration Management activities to be performed is defined by the Project Plan. These include:

- Planned updates to this Configuration Management Plan
- Creation of Product Baselines
- Baseline audits
- Schedules for Configuration Management Oversight Meetings (and other activities) will be set as a result of review and approval of this plan.
- Schedules for oversight of contractor Configuration Management activities (define or reference the schedule)

8.2 CM Phases

Refer to Section 8.2 of the Enterprise CM Plan.

9 Configuration Management Resources

9.1 Tools, Techniques, Training

Identify the tools, techniques, and training used to support the Configuration Management function. Discuss the application of these items to Configuration Management's function in appraisal, preventive and corrective actions that contribute to the success of the project.

9.2 Tools

Describe the tool sets that Configuration Management employs in the conduct of administrative and technical functions.

9.3 Techniques

Describe Configuration Management's use of the supporting policies, and accepted standards in management of internal activities. Describe the role

of CM to ensure that any contractors conform to the requirements of the policies, and standards.

9.4 Training

Describe the training that will be provided to the Project team.

10 CM Plan Maintenance

Describe the activities and responsibilities necessary to ensure continued Configuration Management planning during the life cycle of the project. Define who is responsible for monitoring the Configuration Management plan. Describe how frequently updates are to be performed; how changes to the Configuration Management plan are implemented.

10.1 Project Level CM Plan Maintenance

Refer to Section 10.1 of the Enterprise CM Plan.

10.2 Relationship to Other Plans

Refer to Section 10.2 of the Enterprise CM Plan.

11 CM Contractor / Vendor Control

Contractors are required to meet the CM requirements. The requirements may be tailored to fit the scope and magnitude of the contract task. A complete Configuration Management plan should be required of the contractor if an extensive contract is envisioned. If the contract is minor in content a plan may not be required. However, provisions must be made for continuous communication and monitoring of Configuration Management activities, review, and disposition of subcontractor supplied documents and subsequent changes, and the final audits. Contractors will provide status accounting reports reflecting the development of software, hardware, and COTS Configuration Item data.

11.1 CM Contractor Control

Refer to Section 11.1 of the Enterprise CM Plan.

11.2 CM Vendor Control

Refer to Section 11.2 of the Enterprise CM Plan.

12 Configuration Management Records Collection and Retention

12.1 Storage, Handling, and Release of Project Media

Refer to Section 12.1 of the Enterprise CM Plan.

12.2 Backup and Recovery

Describe when and how the repository database will be routinely backed-up.

12.3 Storage

Refer to Section 12.3 of the Enterprise CM Plan for subsections.

Attachment A—<Other>

Add attachments (or appendices) as needed. These can include completed tailoring forms, descriptions of the development approach/methodology, management or technical processes to be followed, etc.

SDLC Configuration Management Plan Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Configuration Management Plan deliverable. This checklist is recommended for use by authors and reviewers.			

Configuration Management Plan	**Yes**	**No**	**N/A**
Are the items that will be placed under configuration management (CM) for the project identified?	☐	☐	☐
Are the roles and responsibilities for CM on the project identified?	☐	☐	☐
Have CM events and milestones for each SDLC phase been described?	☐	☐	☐
Are CM policies, procedures, and standards applicable to the project identified?	☐	☐	☐
Are procedures for communicating configuration changes described?	☐	☐	☐
Have linkages to Information System Security procedures been identified?	☐	☐	☐
Has the CM process model to be used been identified?	☐	☐	☐
Have configuration identification procedures been identified?	☐	☐	☐
Do configuration identification procedures describe naming and release numbering conventions?	☐	☐	☐
Are configuration change control activities and procedures described?	☐	☐	☐
Do configuration change control procedures describe the change request process and applicable configuration change control boards?	☐	☐	☐
Have configuration status accounting procedures been described?	☐	☐	☐
Have configuration audit and review procedures been described?	☐	☐	☐
Have configuration release management procedures been described?	☐	☐	☐
Have configuration management planning procedures been described?	☐	☐	☐
Has a schedule for CM phases and activities been described?	☐	☐	☐
Has the approach for applying CM tools to project CM been described?	☐	☐	☐
Have techniques for using enterprise CM policies and standards to evaluate project-level CM been described?	☐	☐	☐
Has CM training requirements and a training plan for the project been presented?	☐	☐	☐
Is a plan for maintaining the CM Plan described?	☐	☐	☐
Are procedures described for maintaining CM control of contractors/vendors?	☐	☐	☐
Have configuration record collection and retention procedures been described?	☐	☐	☐
Comments:			

Project Name

Quality Assurance Plan

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Explain the purpose of the QA Plan among documents defining the project management processes to be followed. For example, if this document supplements a Project Management Plan (PMP), explain relationships to processes defined in the PMP.

1.2 Document References

Identify documents that supplement the QA Plan. This may include a Project Management Plan (PMP), Risk Management Plan (RMP), Test Plan, etc.

2 Project QA Description

This section will describe, at a high-level, the role of QA on the project.

2.1 Quality Objectives

Define quality objectives established for the project -- the customer-perceived aspects that will determine whether the system meets user requirements. These are typically business driven, focusing on desired outcome or impact to the organization.

2.2 Standards and Guidelines

Identify the QA standards and guidelines applicable to the project. Include technical, documentation, testing, and development standards. Place references to standards and guidance documents in the relevant section of the Introduction.

2.3 Roles and Responsibilities

Describe the organizational responsibilities as they relate to QA on this project. Show how the project QA team relates to the development team, and discuss the level of independence between the two teams.

2.4 QA Tools and Procedures

Identify specific tools and procedures that will be used to evaluate the project's adherence to QA standards and guidelines. This would identify software or other aids to be used, and details of procedures to be followed, including quality measurements.

3 Reviews and Audits

Describe QA review processes that will be used to verify quality of work processes and work products. Identify activities to be performed as well as key QA checkpoints in each SDLC phase. Note: Schedules should be maintained in the project plan, not here.

3.1 Product Reviews

Define which work products are to be reviewed, who will conduct the reviews, when reviews will occur, the success criteria, and what types of reviews (inspection, walkthrough, informal review, technical review, etc.) are to be used.

3.2 Process Reviews

Describe which project processes will be reviewed, by whom, when, the success criteria, and how they will be reviewed. Include both project management and technical processes (e.g., development, testing, configuration management, etc.).

3.3 QA Progress Reviews

Describe the reviews of the quality assurance efforts that are to be held periodically to monitor the execution of this plan. These reviews may be part of the project review cycle or they may be separately done by the ITS Quality Management group.

3.4 QA Lessons Learned Reviews

Describe how and when lessons learned about QA will be gathered. This may be done as part of the project’s lessons learned activities, and/or there may be separate gathering by the ITS Quality Management group.

3.5 Independent Review of QA

[Note: This section may be appropriate for projects with a 'high' tailoring profile.] Describe how independent review will be done for the QA activities. This may be referenced if it exists in the operating plan for the ITS Quality Management group.

4 Problem Reporting and Corrective Action

Describe methods to be used to identify problems and develop corrective actions. Quality defect reports and corrective action tracking data should be maintained via a change control process identified as a part of a project configuration management plan.

4.1 Quality Action Reports

Describe the procedures and formats for the documenting and tracking anomalies, violations of program standards, or other potential problems via Quality Action Reports (QARs).

4.2 QA Escalation Procedure

Describe the QA escalation procedures that will bring high-risk or long-standing, unresolved noncompliance-tracking issues to the attention of senior management.

5 Quality Measurements

Identify the project-level quality goals, metrics and associated measurements that will be tracked and reported. These should be defined to support the reviews and audits described above. Use Attachments C and D as needed.

5.1 Quality Requirements

Describe quality characteristics (also known as quality factors and quality attributes) of the work products and processes that must be achieved in order to meet project quality objectives. Sources may include users or OCC/government regulations.

5.2 Quality Metrics and Measures

Define applicable quality metrics and measures. Each metric should include a description, evaluation criteria (including target values), data sources, frequency of measurement, responsibility, and association with project QA reviews/audits.

6 Quality Records

Identify the quality records (e.g., reports, metrics, variance reports, executed checklists, etc.) that will be maintained during the project, including how and where each type of record will be stored and for how long. Populate the table below as needed.

Quality Records	Provided to Whom	How & Where Stored	Retention Period	Disposal Method
Project Files				
Status Reports				
Audit Reports				
Progress Reports				
Metrics Reports				

7 Quality Training

Identify the required skills to perform QA tasks and any training activities required for the project team to achieve the QA objectives for this project. Use the following table to convey this information. Extend the example below as needed.

Task	Skill Requirements	Type	Source
Code Reviews	Source Language, Peer Reviews	Classroom/On-the-Job training	Name of training course
Deliverable Reviews	SDLC Documentation standards and guidelines, Peer Reviews	Classroom/On-the-Job training	Name of training course

Attachment A—Quality Definitions

Term	Definition
Quality Management	Quality Management is the OCC umbrella program that encompasses quality assurance (QA), independent verification and validation (IV&V), and IT policies, standards, and procedures.
Quality Assurance	QA refers to the processes used to verify that deliverables are of acceptable quality and that they meet the completeness and correctness criteria established. QA does not refer to specific deliverables. ▪ The preparation of a QA plan for a project is part of QA. ▪ The development of standards is part of QA. ▪ The execution of a "Quality Event" is part of QA.
Quality Materials	The artifacts used within OCC to assist the project manager in improving quality in the project (e.g., templates, standards, checklists, etc.). These materials are used in "Quality Events."
Quality Events	The activities undertaken using "Quality Materials" to validate the quality of the project. Examples of quality events: Expert Review — Review of a deliverable by a person who is considered an expert in the area. For example, a review of a data model by a senior DBA. The person may not currently hold a position (e.g., currently be a DBA) but has expert knowledge in the area. This type of review is good when the focus is on accuracy of content rather than of structure. Peer Review — Review of deliverables by one's peers. Peer reviews are better suited where the emphasis is on structure rather than content. A peer review will focus on ensuring the deliverable is well designed and developed. Neither an "Expert Review" nor a "Peer Review" is exclusively focused on content or structure. They each however, have different emphasis. Walkthrough — A walk-through is a useful technique to validate both the content and structure of a deliverable. Material should be circulated in advance. Formal Inspection — A formal inspection is a review of a deliverable by an inspector who would typically be external to the project team. The inspector captures statistics on suspected defects. It is a useful technique for use with documentation. Audit — An independent examination of a work product or process to determine compliance with specifications, standards, contractual agreements, or other pre-established criteria. Process audits and configuration audits are two types of audits. Process Review — Review of a business process to ensure all necessary actions are being undertaken, information recorded, and procedures followed. A process review is useful to validate the existing processes in the organization. For a project quality check, a process review may be carried out to ensure proper change control procedures are in place.
Quality Assurance Plan	A plan as to how and when "Quality Events" and "Quality Materials" are applied to a project.
Quality Control	The implementation of the "Quality Events" in the Quality Assurance Plan.

Term	Definition
Quality Metrics	Statistics captured during the various activities undertaken as part of Quality Assurance. Metrics are captured to: ▪ Identify areas where quality improvements can be made. ▪ Measure the effectiveness of quality improvement activities.
Continuous Quality Improvement	Use of captured metrics, and lessons learnt to continually improve quality. They are the main reason for capturing statistics around quality.

Attachment B—Software Metrics Guide

Refer to ITS Quality Management guidance for development of project quality metrics. The following table provides an example of metrics for software requirements development, created using the Goals > Questions > Metrics paradigm.

EXAMPLE				
Specific Practice	**Measurement Goal**	**Operational Measures**	**Managerial Measures**	**Business Measures**
Stakeholder needs, expectations, constraints, and interfaces are collected and translated into customer requirements.				
Gather stakeholder needs, expectations, constraints, and interfaces for all phases of the product life cycle.	Stakeholders involvement in Requirements Development (RD)	▪ # of stakeholder needs ▪ # of constraints ▪ # of interfaces ▪ Time spent on requirement gathering ▪ # of methods (interviews, prototypes, surveys, use cases, product domain analyses) used for requirement gathering	▪ Size of requirement ▪ Requirement count ▪ # of requests per unit of time ▪ Time spent by customer	Effort/cost of RD
Transform stakeholder needs, expectations, constraints and interfaces into customer requirements	Rigor of RD process	▪ # of needs identified ▪ # of requirements defined ▪ # of product components defined	▪ # of requirements per customer need	Cost per product component
Customer requirements are refined and elaborated to develop product and product-component requirements.				
Establish and maintain product and product-component requirements based on customer requirements.	Rigor of RD process	▪ # of product and product component requirements ▪ # of external interfaces	▪ # of requirements per product component ▪ Cost/performance tradeoffs of requirements and lifecycle phases, considering business objectives (# requirements cancelled, postponed)	Cost per product component
Allocate the requirements for each product component	Distribution of Requirements	▪ # of requirements per product component	▪ Effort per product component	Cost of fulfilling requirements
Identify interface requirements	Complexity of Requirements	▪ # of external interface requirements	▪ # of requirements per interface	Cost of fulfilling interface requirements

Use the following worksheet to develop and document quality metrics for the project.

QUALITY OBJECTIVES AND METRICS WORKSHEET Name of Process Area or Practice				
Specific Practice	**Measurement Goal**	**Operational Measures**	**Managerial Measures**	**Business Measures**
<Overall objective of practice>				
		▪	▪	
		▪	▪	
<Objective of practice>				
		▪	▪	
		▪	▪	
		▪	▪	

Attachment C—Quality Characteristic Requirements, Criteria, and Metrics Definition

The following is non inclusive list of potential software quality characteristics. Other quality requirements and metrics may be added as necessary. (Note: Quality Requirements translate to Quality Criteria which define Quality Metrics)

User-Perceived Quality Requirement	Description	System-Related Quality Criteria to be Monitored	Description	Rank Importance	Associated Metrics
Product Factors					
Accessibility	That ability of authorized users to access <project name> whenever and wherever they need access.	Penetration	The extent to which <project name> is successfully disseminated to its intended user community.		
		Virtuality	The extent to which users do not require knowledge of the physical, logical, or topological characteristics of <project name>.		
Correctness	The extent to which <project name> satisfies its specifications and fulfills the user's objectives.	Completeness	The degree to which <project name> provides full implementation of the functions required.		
		Consistency	The degree to which <project name> provides uniform design and implementation techniques and notation.		
		Accuracy	The degree to which <project name> provides the require precision in calculations and output.		
		Compliance	The extent to which <project name> follows established processes, standards and procedures.		
Efficiency	The extent to which <project name> performs its intended function with a minimum consumption of computing resources	Effectiveness	The degree to which <project name> utilizes minimal resources (e.g., processing time, storage) in performing system functions.		
Expandability	The ease with which <project name> can be modified to add functionality. Also the ability of the system to process increasing volumes of data without noticeable fluctuations in performance.	Augmentability	The degree to which <project name> provides for expansion of capability of functions and data.		
		Modularity	The degree to which <project name> provides highly cohesive modules with optimum coupling.		
		Virtuality	The extent to which users do not require knowledge of the physical, logical, or topological characteristics of <project name>.		
		Simplicity	The degree to which <project name> defines and implements its functions in the most non-complex and understandable manner.		
Integrity	The extent to which <project name> safeguards against unauthorized access to or modification of software or data.	Security	The extent to which <project name> assigns and utilizes the types (e.g., read only) and levels (e.g., function, data file, data field) of security necessary to control access.		

User-Perceived Quality Requirement	Description	System-Related Quality Criteria to be Monitored	Description	Rank Importance	Associated Metrics
		Auditability	The extent to which <project name> maintains an audit trail of modifications including responsible user to functions and data.		
Interoperability	The ability of <project name> to exchange information with ***list of other system names*** , and to mutually use the information that has been exchanged.	Commonality	The extent to which <project name> utilizes interface standards for protocols, routines and data representations.		
		Independence	The degree to which <project name> is non-dependent on the software environment (computing system, operating system, utilities, I/O routines, libraries).		
Maintainability	The extent to which the <project name> components can be maintained over their expected useful life.	Conciseness	The degree to which <project name> implements its functions with a minimal amount of code.		
		Consistency	The degree to which <project name> provides uniform design and implementation techniques and notation.		
		Modularity	The degree to which <project name> provides highly cohesive modules with optimum coupling.		
		Simplicity	The degree to which <project name> defines and implements its functions in the most non-complex and understandable manner.		
Portability	The extent to which <project name> can be transferred to new operating environments, hardware platforms and operating systems.	Independence	The degree to which <project name> is non-dependent on the software environment (computing system, operating system, utilities, I/O routines, libraries).		
		Modularity	The degree to which <project name> provides highly cohesive modules with optimum coupling.		
Presentability	The extent to which the aesthetic (visual and artistic) qualities of <project name> present the desired image.	Image	The degree to which <project name> provides a consistent, attractive identity which is understood by all users.		
Profitability	The ability of <project name> to positively impact the productivity and profitability of <customer name, or department name, or product name>	Productivity	The extent to which <project name> demonstrates an improvement in the productivity of those who use it.		
		Affordability	The degree to which <customer name> can afford to operation <project name> for all potential users.		
		Cost vs. Benefit	The degree to which the benefits of <project name> outweigh the costs.		
Reliability	The ability of <project name> to perform a required function under stated conditions for a stated period of time.	Anomaly Management	The extent to which <project name> can provide for continuity of operations under, and recovery from anomalous conditions.		

User-Perceived Quality Requirement	Description	System-Related Quality Criteria to be Monitored	Description	Rank Importance	Associated Metrics
		Accuracy	The degree to which <project name> provides the required the precision in calculations and output.		
Reusability	The extent to which modules of code can be used in multiple applications.	Application Independence	The extent to which <project name> is independent of the software applications (e.g., the database system, data structure, system library routines, etc.).		
Usability	The extent to which the functional components delivered by <project name> are understandable and applicable by the end-users.	Simplicity	The degree to which <project name> defines and implements its functions in the most non-complex and understandable manner.		
		Virtuality	The extent to which users do not require knowledge of the physical, logical, or topological characteristics of <project name>.		
		Training	The extent to which <project name> provides familiarization of its functions and operations to its users.		
Process Factors					
Financial Performance	The extent to which <project name> meet its financial targets.	Performance to Budget	The extent to which <project name> is delivered according to the contracted costs.		
Timeliness	The extent to which <project name> is delivered in a timeframe which meets <customer name>'s requirements.	Performance to Schedule	The extent to which <project name> is delivering according to the established schedule.		
Resource Effectiveness	The extent to which the optimal resources are assigned to <project name> to ensure quality, on-time delivery.	Actual vs. Required Skills	The extent to which the skill set required by the project matches the skill set of the resources assigned to the project.		
Future Business Potential	The extent to which <Customer Name> is likely to provide a positive reference to other potential customers.	Customer Satisfaction	The extent to which <Customer Name> is satisfied with the development process, the delivery personnel, and the level of service provided.		

Attachment D—Quality Metrics and Measures Table

Use the following table to list quality metrics and measures applicable to the project. An example of a process quality metric is shown below.

Metric	Description	Evaluation Criteria (Target)	Data Source	Frequency	Responsibility	QA Event
Product Metrics						
Process Metrics						
Performance to schedule	Track the number of reviews (QA events) conducted	Meet all scheduled quality milestones	QA Schedule, QA Reports, Project Management Plan	Monthly	QA Manager	Reviews

SDLC Quality Assurance Plan Checklist

Project Name:		**Version:**	

This checklist is provided as an aid to check the consistency and completeness of the Quality Assurance Plan deliverable. The checklist is recommended for use by authors and reviewers.

Quality Assurance Plan	**Yes**	**No**	**N/A**
Does the document clearly identify the quality assurance (QA) activities that will be performed on the project?	☐	☐	☐
Have project quality objectives been defined?	☐	☐	☐
Have QA standards and guidelines applicable to the project been identified?	☐	☐	☐
Have QA roles and responsibilities been described for the project?	☐	☐	☐
Have QA tools and procedures to be used on the project been identified?	☐	☐	☐
Are QA reviews of the project's work products described?	☐	☐	☐
Are QA reviews of the project's processes described?	☐	☐	☐
Are reviews of progress against the QA Plan described?	☐	☐	☐
Are lessons-learned reviews of project QA described?	☐	☐	☐
Are independent reviews of project QA described?	☐	☐	☐
Are methods for identifying and reporting quality problems described?	☐	☐	☐
Are corrective action procedures identified?	☐	☐	☐
Is an escalation procedure described with sufficient detail to ensure that significant issues can be resolved with input of senior management?	☐	☐	☐
Are quality requirements specified for project work products?	☐	☐	☐
Are quality requirements specified for project processes?	☐	☐	☐
Have problem reporting and corrective action been described?	☐	☐	☐
Have applicable quality metrics and measures been defined for the project quality reviews and audits?	☐	☐	☐
Have quality records that will be maintained during the project been identified?	☐	☐	☐
Have quality training activities and skills required for conducting project-level QA been described?	☐	☐	☐

Comments:

Project Name

Requirements Document

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Briefly explain the purpose of this deliverable by describing the role it plays in the project work plan. Identify its relationship to the project scope, objectives, and high-level requirements defined during project initiation and planning.

1.2 Scope

Define the current scope of the requirements contained in this document. For example, if the system will be developed in an iterative fashion through multiple releases, describe which releases are addressed in this version of the document.

1.3 Document References

Identify documents that supplement the requirements contained in this document. A listing may include documents produced at project initiation, such as a Project Charter, Business Case, Capital Call Request, Business Requirements Document, etc.

1.4 Acronyms

List acronyms and their descriptions that are used in this document.

1.5 Definitions

List and define specific terminology used in the document. Typically this section would address business terms that are unique to the system being developed.

1.6 Document Overview

Provide a brief summary of the document structure. This information can help readers understand how to navigate the contents.

2 Assumptions and Constraints

2.1 Assumptions

Identify assumptions about the documented requirements that are outside the control of this project. Describe those things that may influence the ability to realize the system features described according to the planned approach and schedule.

2.2 Constraints

Identify constraints imposed on requirements due to conditions beyond the control of the project. Relevant constraints may exist due to business operations, technical limitations, dependencies with other projects, etc.

(Note: Detailed design constraints should be listed separately in the last section of this document.)

3 System Overview

This section should present a high level system overview, summarizing the concept developed during project initiation. (Note: In the Requirements Traceability Matrix, this information typically comprises the top levels of the requirement-type hierarchy.)

3.1 Summary of Objectives

Briefly highlight the system's alignment with OCC and Business Unit strategic objectives. This information can be summarized from the Business Case and Capital Call Request produced at project initiation. This information should be included in the RTM.

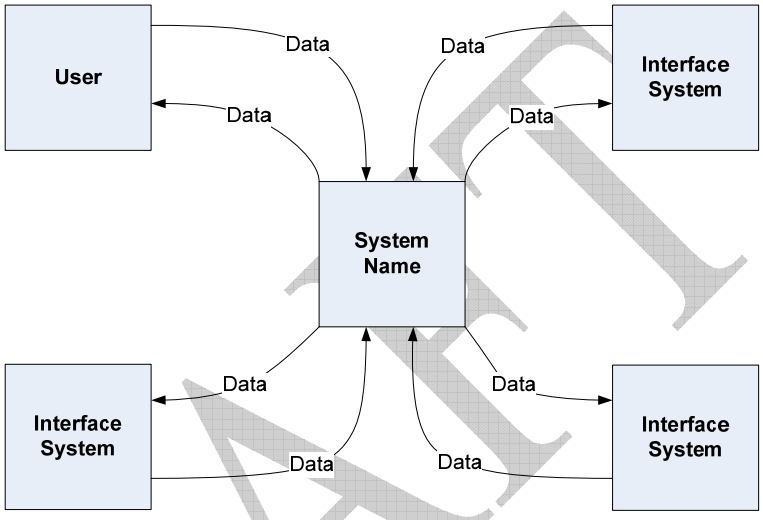
3.2 Summary of Needed Changes

Briefly describe the current situation or system, in terms of the business problems to be solved or business opportunities to be addressed. This information should be included in the RTM.

3.3 System Concept

Summarize new or modified capabilities, functions, processes, and interfaces that will be developed. Introduce system features that must be implemented in order to support the business need.

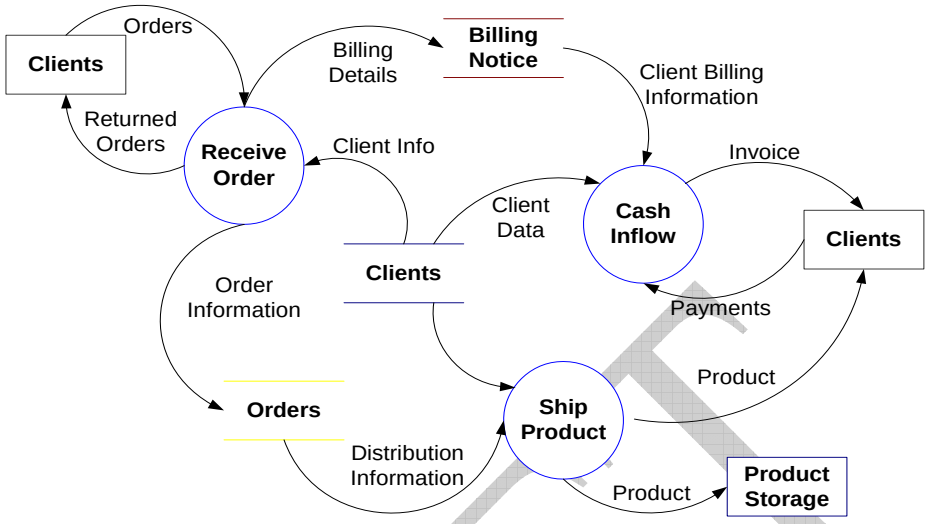
Use graphics, such as a Context Diagram (example shown below), to communicate the broad system concept.



4 Process Requirements

All processes the system will support should be identified and characterized in this section. Detailed system features and functional requirements should be identified for every process. These requirements should be included in the RTM.

Use graphics, such as a Data Flow Diagram (example shown below), to communicate the detailed system context. In such a diagram, each process must have separate input and output flows to or from external interfaces, users, data stores, or other processes.



Sample Data Flow Diagram

4.1 [Process 1]

Provide a section for each major process. Describe the process, its inputs, outputs, processing requirements, and any applicable business rules. Itemize features that the system must have, as well as specific, testable functional requirements.

4.1.1 [Sub-Process 1.1]

Provide a description for each sub-process, as needed. Include the level of detail recommended for each major process, as noted above.

4.1.2 [Sub-Process 1.2]

Repeat, as for [Sub-Process 1.1].

4.1.3 [Sub-Process 1.n]

Repeat, as needed.

4.2 [Process 2]

Repeat, as for [Process 1].

4.3 [Process n]

Repeat, as needed.

5 Users

This section should identify system users and categorize them into user classes. All required user classes should be identified and linked to system processes. Examples may include data entry operators, analysts, executive decision makers, etc.

5.1 Profiles of User Classes

Describe the pertinent characteristics of each user class. Factors that define a user class include responsibilities, skill level, work activities, and mode of interaction with the system. Identify which functions each user class can access or use.

(Note: This information may be presented best in a table format.)

5.2 Organizational Structure of User Classes

Describe the relationships and organizational structures (and hierarchy, if applicable) of the various user classes that will be involved with the system. Describe the interactions among user classes.

(Note: This information may be supplemented with a diagram.)

6 Data Requirements

This section should include a high level description of data entities and their alignment to the OCC Enterprise Data Architecture. Authors should coordinate with ITS Data Management Services to generate this information in accordance with OCC standards.

6.1 Data Entities

Identify and describe logical data entities and their attributes. An entity is defined as an item of significance about which information needs to be known or held. Align to the Data Flow Diagram shown previously.

6.1.1 [Data Entity 1]

Provide a description of the data entity followed by a list of important attributes.

6.1.2 [Data Entity 2]

Repeat, as for [Data Entity 1].

6.1.3 [Data Entity n]

Repeat, as needed.

6.2 Linkage to Enterprise Data Architecture

This section ensures that each proposed logical data entity maps to a specific subject area within the OCC Enterprise Data Architecture. Identify any candidate entities not already included in the agency's EA.

The following format is suggested to represent existing or new logical data entities needed by the project, indicating if and how they map to conceptual data entities in the OCC Enterprise Data Architecture.

EA Subject Area	EA Conceptual Entity	EA Conceptual Entity Definition	Candidate Logical Entity	New/Existing	Create? Read? Update? Delete? (C/R/U/D)

6.3 Metadata

Using the standard metadata template available from ITS-Data Management Services, list all data entities, including their data elements. This information should be initiated during the Requirements Phase and refined and finalized during the Design Stage.

7 Interface Requirements

Interface requirements describe the interaction of the system with users, adjacent systems, hardware, software, and communications networks. All such requirements should be identified in this section.

7.1 Accessibility – Section 508 Compliance

Provide any requirements related to section 508 of the Rehabilitation Act.

7.2 User Interfaces

Provide the user interface requirements governing how users will access and interact with the system.

7.3 External System Interfaces

Name all external systems with which this system must interface, as introduced in the system overview. All areas that connect with another system need to be documented for security purposes.

(Note: These requirements will form the basis for the associated Interface Control Document.)

7.4 Other Hardware and Software Interfaces

Provide requirements for any other hardware or software interfaces. Provide subsections for each such interface. All areas that connect with another system need to be documented for security purposes.

7.5 Communications Interfaces

Provide any communications interface requirements to other systems or devices, such as local area networks. Identify any related security requirements.

7.6 Output Requirements

Specify the output requirements by listing any known data presentation or reporting requirements. Leverage information about process outputs identified in the Process Requirements section.

8 Operational Requirements

Provide operational requirements that describe what will be required to operate and maintain the system. Requirements listed here should align to non-functional, infrastructure, and user support requirements in the requirement type hierarchy.

8.1 Audit Trail

Provide the audit trail requirements. List the activities that will be recorded in the system audit trail and include the data to be recorded for each activity.

8.2 Data Currency

Provide the data currency requirements for each data type. Data currency is a measure of how recent data are. The data currency requirements answer the question “When the application responds to a request for data, how current must the data be?”

8.3 Recoverability

Recoverability is the ability to restore system function and data in the event of a failure. These requirements should address how quickly service needs to be restored in multiple scenarios such as recovering from data corruption or hardware failure.

8.4 System Availability

System availability is the time when all or part of the system must be available for use. Required system availability is used in determining when maintenance may be performed. Account for all users at all sites.

8.5 Fault Tolerance

Fault tolerance is the ability to remain partially operational during a failure. These requirements should identify the priority of functions that do/do not need to be available, as well as what level of performance degredation is acceptable.

8.6 Performance

Provide peformance requirements such as: total number of users; number of simultaneous users; transaction frequency; response time; throughput rate; internal database performance; etc. Match performance requirements to processes defined previously.

(See Appendices for additional guidance on performance requirements.)

8.7 Capacity

Describe the required capacity and the expected data volume in business terms. Specify data volume as applicable (e.g., megabytes). Identify any

circuit or network capacity requirements for data transmission. Provide growth projections, if available.

8.8 Data Retention

Data retention requirements describe the length of time the data must be retained. Data retention requirements must be established by the customer through OCC's Records Management department.

8.9 Interoperability

Interoperability requirements describe the proper functioning of the system in concurrent operation with other systems, applications, or components. Document any such requirements in this section.

8.10 Portability

Portability requirements describe the requirements for transferring the system or system components between different platforms or environments. Document any such requirements in this section.

9 Security

Work with the ITS Information Security Office to determine the security requirements applicable to this system and describe the results of that work at a summary level in this section. Detailed security requirements should be included in the RTM.

10 Design Constraints

In special cases, some requirements may severely restrict design options. Identify any such constraints in this section. Examples include: physical requirements, performance requirements, software development standards, software quality standards, etc.

Appendix A—Requirements Traceability Matrix (RTM)

Each requirement should be uniquely identified in the RTM with an ID number and associated attributes. Requirements management throughout the SDLC process requires the RTM to be periodically updated to reflect the status of each requirement.

When generating an RTM, include columns and information for each of the requirement attributes listed in the table below. Note: In the event that a requirements tracking system is being used, a separate RTM does not have to be maintained.

RTM Column	Content
Requirement ID Number	In this column, include the Requirements Document ID number of each requirement.
Requirement Statement	In this column, include the text of each requirement as it appears in the Requirements Document.
Rank/Priority	In this column, include a rank or priority (e.g., 1=mandatory, 2=desirable, 3=optional) for each requirement. Elsewhere in the document, provide a legend explaining the meaning of the rank/priority values.
Release Number	In this column, include the release number in which the requirement will be implemented. This column is needed for phased implementation and in the O&M phase when requirements are added.
Source (1 through n) Reference Number	Include a column for each source document. Common source documents may be the Business Case or Capital Call Request; In the O&M Phase, the typical source is a system change request (SCR), in which case the SCR number can be listed; etc. ▪ In this column, include the ID number or subsection number of the source of each requirement: ▪ Include the term “Original” when the source is not defined or identified elsewhere or in any previous document ▪ Sources include, but are not limited to, project initiation documents, SCRs, User Group reports, other reports or documents, etc. In all cases, the source document must be under configuration control. It is not sufficient to say “meeting minutes.”
Reference (1 through n) Design Element Number (Post Requirements Phases)	Include a column for the name of the reference for each design element. Typically the reference document is the Design Document. In this column, include the ID number or subsection number of the design element(s) that satisfy each requirement.
Software Module Name (Post Design Phase)	Include in this column the software module name(s) that satisfy each requirement.
Testable (Y/N)	Indicate whether the requirement is testable
Reference (1 through n) Acceptance Test Procedure Number (Post Development)	Include a column for each reference acceptance test procedure. Include the plan number for each test procedure testing the subject requirement.

RTM Column	Content
Requirement Type	Note: A standard requirement type hierarchy may be applicable to the project. Basic requirement types – by hierarchy level – include: 1- OCC Strategic Objectives (OSO) 2- Business Unit Strategic Objectives (BUSO) 3- Business Problem or Opportunity (BPO) 4- Stakeholder Need (STN) 5- Feature (FEAT) 6- Actor (ACT) 6- Business Rule (BUS) 6- Use Case (UC) 6- Contractual (CORQ) 6- Legal and Statutory (LEGAL) 6- Glossary Item (GLOSS) 6- Functional (FUNC) 6- Data (DATA) 6- Non-Functional (NON) 6- Hardware, Software, and Infrastructure (INFRA) 6- User Support (US)
Comment (Optional)	Optionally include any comments associated with any requirement

Appendix B—Operational Requirements

The following table (for optional use) is provided to help identify operational requirements. The author can populate this table in order to specify detailed operational requirements.

(Note: Any requirements documented here should be included in the RTM, if applicable.)

Item/Question	Response	Comments
Availability		
Define and justify high availability specifications		
Maximum allowable downtime within the data center:		
Maintenance downtime specifications:		
Production Schedule		
Anticipated production schedule (for example, 24x7, 12x7, or 8x7)		
Hours of operation		
Peak (for example, 7 a.m. to 8:30 p.m. weekdays)		
Off-peak		
File and Database Backup and Retention		
Define the system back-up specifications:		
- Backup mode:		
- Export (daily, weekly, monthly, etc.):		
Define the database back-up specifications:		
- Backup mode:		
- Export (daily, weekly, monthly, etc.):		
Software/Utilities		
Define the software/utilities specifications:		
Transaction Name, Number, Type, and Load		
List of transaction names and the sizes of each		
Peak transaction time/duration by site		
Peak (busiest hour) transaction load by site (number and type of transactions during peaks)		
Usage Information		
Estimate Number of Users		
- Application Users		
- Administrative Users		
- Development Users		
What is the expected maximum number of concurrent users?		
What is the expected maximum number of monthly users?		
What is the size of the active user community?		
Does the application require or handle user authentication?		

Item/Question	Response	Comments
Will the application be accessed at a consistent rate throughout the month?		
If not, what pattern of accessibility is expected for the application (e.g. end of every month)?		
What is the monthly bandwidth a typical user will generate?		
Will the user community be evenly distributed across time zones or located primarily at Headquarters?		
List significant data feeds, updates or production runs with an estimate of their system processing requirements – high, medium or low.		
How frequently are updates to the application expected?		
Are there local disk space requirements? Is so, describe the requirements.		
Are there reporting requirements? Is so, describe the requirements.		
Will the application be accessed from the Public Internet?		
Will the application be accessed from the OCC Intranet?		

SDLC Requirements Document Checklist

Project Name:		**Version:**	

This checklist is provided as an aid to check the consistency and completeness of the Requirements Document deliverable. This checklist is recommended for use by authors and reviewers.

Requirements Document	**Yes**	**No**	**N/A**
Has a summary of objectives to be met by the system been included?	☐	☐	☐
Have system inputs and outputs been described?	☐	☐	☐
Do the process requirements fully address the business needs of system users?	☐	☐	☐
Are inputs specified for all processes?	☐	☐	☐
Are system features specified for all processes?	☐	☐	☐
Are functional requirements specified for all processes?	☐	☐	☐
Are relevant business rules specified for all processes?	☐	☐	☐
Are outputs specified for all processes?	☐	☐	☐
Have all user classes been identified?	☐	☐	☐
Are system features and functionality linked to user classes?	☐	☐	☐
Have data requirements been specified?	☐	☐	☐
Are data requirements linked to the OCC Enterprise Data Architecture?	☐	☐	☐
Have data currency requirements been specified?	☐	☐	☐
Have data retention requirements been specified?	☐	☐	☐
Have accessibility (e.g., section 508 compliance) requirements been specified?	☐	☐	☐
Have user interface requirements been specified?	☐	☐	☐
Have hardware interface requirements been specified?	☐	☐	☐
Have requirements for software interfaces with external systems been specified?	☐	☐	☐
Have communications interface requirements been specified?	☐	☐	☐
Have audit trail requirements been specified?	☐	☐	☐
Have system recoverability requirements been specified?	☐	☐	☐
Have system availability requirements been specified?	☐	☐	☐
Have system fault tolerance requirements been specified?	☐	☐	☐
Have system performance requirements been specified?	☐	☐	☐
Have system capacity requirements been specified?	☐	☐	☐
Do system capacity requirements include growth projections?	☐	☐	☐

Have system interoperability requirements been specified?	☐	☐	☐
Have system portability requirements been specified?	☐	☐	☐
Have security requirements been specified?	☐	☐	☐
Are references to relevant system security documentation and artifacts provided?	☐	☐	☐
Are design constraints arising from requirements identified?	☐	☐	☐
Is each requirement stated unambiguously?	☐	☐	☐
Is each requirement complete?	☐	☐	☐
Is each requirement consistent with other system requirements or requirements defined in higher-level system documentation?	☐	☐	☐
Is each requirement verifiable?	☐	☐	☐
Is each requirement implementation independent?	☐	☐	☐
Is each requirement achievable?	☐	☐	☐
Is a Requirements Traceability Matrix provided?	☐	☐	☐
Have the requirements been ranked by priority?	☐	☐	☐
Has each requirement been assigned a unique identifier?	☐	☐	☐
Is each requirement traceable to a referenced source?	☐	☐	☐
Is a requirement type identified for each requirement?	☐	☐	☐
Does each requirement demonstrate an organizational benefit that is traceable to an OCC goal, business objective, or process?	☐	☐	☐
Comments:			

Project Name

Interface Control Document

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Provide a brief statement that introduces the Interface Control Document (ICD).

1.2 Scope

Define the scope of interface specifications for this project.

1.3 Document References

Identify documents that supplement the ICD. A listing may include other documents produced at project initiation, such as a Project Charter, Project Management Plan, Integrated Master Schedule, Risk Management Plan, etc.

1.4 Acronyms

List acronyms and their descriptions that are used in this document.

1.5 Definitions

List and define specific terminology used in the document.

2 General Interface Description

Introduce the systems participating in the interface. A diagram may be included here to show system inputs and outputs.

2.1 System 1

Describe System 1 in the interface.

2.2 System 2

Describe System 2 in the interface.

2.3 System n

Repeat as needed.

3 Functional Interfaces

3.1 <System 1>/<System 2> Interface Description

Summarize the functions of the interfacing system, including identification of data transferred, volume, and frequency of transfer. Include any data transformations that need to take place on the data feed.

3.1.1. Data Exchange

Describe the data exchange specifications in terms of data transferred, volume, and frequency. Include security and performance specifications.

3.2 <System 1>/<System 3> Interface Description

Include additional section at this level if more than one external system is to be part of the interface being defined.

4 Detailed Interface Specifications

4.1 <System 1>/<System 2> Interface Specifications

4.1.1. Data Flow Characteristics

Describe how data will be moved among component systems of the interface being defined.

4.1.2. Data Format and Content

Define the characteristics of data elements that comprise the data packets defined in section 3.

4.1.3. Protocol and Transfer Method

Indicate the data protocol, communication methods, and processing priorities used by the interface.

4.1.4. Exception and Error Handling

Describe any exception and/or error handling.

4.1.5. Security Specifications

Describe how security will be implemented to enforce data transmission security and data integrity.

4.1.6. Communication Methods

Describe the communication specifications including all aspects of the presentation, session, network and data layers of the communication stack to which both systems participating in the interface must conform.

4.2 <System 1>/<System 3> Interface Specifications

Detailed interface specifications for each interface should be defined separately. Include characteristics described in section 4.1.

Attachment A—<Other>

Add attachments (or appendices) as needed.

SDLC Interface Control Document Checklist

Project Name:		**Version:**	

This checklist is provided as an aid to check the consistency and completeness of the Interface Control Document. This checklist is intended for use by authors and reviewers.

Interface Control Document	**Yes**	**No**	**N/A**
Is the scope of interface specifications defined?	☐	☐	☐
Is a general description provided for each system participating in the interface?	☐	☐	☐
Does the ICD describe each interface and how data is transferred?	☐	☐	☐
For each interface:	☐	☐	☐
• Are detailed interface specifications provided for the data volume, frequency, format, and media?	☐	☐	☐
• Are the data format and content for each identified data packet defined?	☐	☐	☐
• Are the data protocol, communication methods, and processing priorities described?	☐	☐	☐
• Is exception and error handling described, if applicable?	☐	☐	☐
• Are security specifications adequately described?	☐	☐	☐
• Are detailed interface specifications provided for the communication methods?	☐	☐	☐

Comments:

<Project Name>

Design Document

Version X.X

Table of Contents

1 Introduction

Brief introduction to the Design Document.

1.1 Purpose

Explain the purpose of this Design Document.

1.2 Document References

List the documents that are sources or references for this Design Document. Include references to applicable OCC standards including Data Management, Enterprise Architecture, etc.

2 Assumptions, Constraints, and Controls

2.1 Assumptions

Identify assumptions about future situations beyond the control of this project whose outcomes influence project success.

2.2 Constraints

Identify constraints that must be accommodated in the design.

Note: If a solution is not fully accessible for individuals with disabilities pursuant to Section 508 and FAR requirements, identify an Accessibility Plan. Attach the plan in the Appendix of this document as well as the Project Management Plan.

2.3 Controls

Identify roles and responsibilities, as well as procedures and other provisions set in place to ensure that substantial OCC issues are addressed to OCC's satisfaction and that general OCC comments are factored into solution proposals.

3 System Overview

Using non-technical terms, describe what solution approach has been selected (i.e., a custom versus COTS solution) as well as a high-level overview of the system architecture, including applicable subsystems and interfaces.

3.1 COTS Product Information

(Note: this is an optional section, applicable only if the project will be a COTS-based solution).

Describe the COTS product including references to the product version, which components will be used in the solution, vendor information, and how the vendor intends to support the product.

4 System Architecture

Provide a general overview of the system and/or subsystem architecture. Ensure that the overall operating environment, hardware/software architectures, data sources, etc. are introduced in a manner showing that they meet requirements and constraints.

4.1 System Hardware Architecture

Describe the overall system hardware and organization. Include a list of hardware components and any applicable diagrams.

4.2 System Software Architecture

Describe the overall system software and organization, including software modules designed to meet functional requirements as well as general support system software. Provide supporting diagrams.

4.3 Network Architecture

Describe the overall communications architecture being implemented. Include details about the network topology (i.e. LAN/WAN) as well as the communication protocols being used (i.e. TCP/IP, Web Services, etc.). Provide supporting diagrams.

4.4 Data Architecture

Describe the logical structure for data and system files, including data elements, record structures, and file structures associated with module input and output, in conformance with OCC data standards.

1.1.1. Database Management System Architecture

Describe how system data will be organized. Provide a data dictionary that documents the data elements and entities as well as supporting diagrams including normalized table layouts and an entity relationship diagram.

1.1.2. File System Architecture

Describe the file system structure that will be implemented. Include a narrative description of the usage of each file.

5 Human-Machine Interface

Describe how users will enter information into the system, and what outputs will be produced. The interface design should be compliant with Section 508 accessibility requirements for user interfaces and data presentation.

5.1 Input

Provide the layout of input data screens using graphic representations if available. Define all data elements associated with each screen. Describe miscellaneous messages associated with operator inputs.

5.2 Output

Describe outputs including reports, data display screens, and query results. For each output, describe the purpose, primary users, contents, distribution requirements (if any), and security/access restrictions. Use graphic representations if available.

6 Detailed Design

Describe information needed for a system development team to build (and/or procure), configure, and integrate the software and hardware components into a functional product in the OCC network environment. Include graphics where applicable.

6.1 Hardware Detailed Design

Describe processor specifications to include number, speed, and functionality, memory and storage specifications, input/output device specifications, power requirements, etc., as applicable.

6.2 Software Detailed Design

Describe the software components with enough detailed information about logic and data necessary to write source code for all modules in the system

and/or integrate COTS software. Diagrams should use industry-standard module specification practices.

6.3 Internal Communications Design

Provide detailed information about the physical network architecture, and other communication requirements to exchange information, provide commands, or support input/output functions.

6.4 Data Detailed Design

Provide a final data design at the physical level. Include a description of the database management system (DBMS) schemas, sub-schemas, records, sets, tables, etc., and estimates for DBMS file size, log file and data page volume, as applicable.

7 External Interfaces

Describe the electronic interface to any other systems and/or subsystems outside the scope of the system under development.

7.1 Interface Architecture

Describe the interface architecture being implemented between the system being developed and other systems (i.e., gateways, WAN links, etc.). Provide a diagram depicting the communications paths between this system and each of the other systems.

7.2 Interface Detailed Design

Describe the information exchange between the system being developed and other systems. Provide enough detailed information to correctly format, transmit, and/or receive data across the interface.

8 System Integrity Controls

Describe controls such as internal security to restrict access, audit procedures, controls for meeting records retention schedule requirements, application audit trails to dynamically audit retrieval access to designated critical data, etc., as applicable

Attachment A – Acronyms and Abbreviations

Provide business terms unique to the system, as well as the acronyms and abbreviations used in the document.

Attachment B – <Other>

Add attachments or appendices as needed.

SDLC Design Document Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Design Document. A project team should use this checklist in addition to the descriptive text found in the Design Document deliverable template to ensure that the deliverable is sufficiently detailed to enable system development.			

Design Document	**Yes**	**No**	**N/A**
Does the document present a complete overview of the system architecture?	☐	☐	☐
Is the system hardware architecture described, including a list of hardware components?	☐	☐	☐
Is the system software architecture described, including software modules and general support system software?	☐	☐	☐
Do software module descriptions provide an overview of functions, subroutines, classes, and computer languages?	☐	☐	☐
Do support system software descriptions provide details of software products needed to operate and support the architecture as well as software development tools that will be used to design, build, and maintain the application?	☐	☐	☐
Are the system file and database architectures described?	☐	☐	☐
Do descriptions of each system file address whether the file is used for input, output, or both; whether the file is a temporary file; which modules read and write the file; and file structures?	☐	☐	☐
Is the logical data model described, and are supporting graphics provided to aid comprehension?	☐	☐	☐
Does the entity relationship diagram identify logical data entities, relationships between entities and relationship descriptions?	☐	☐	☐
Are the inputs and outputs of human-machine interfaces defined?	☐	☐	☐
Is the human-machine interface design compliant with Section 508?	☐	☐	☐
Does the document present a detailed design of the system hardware, software, and internal communications?	☐	☐	☐
Is the design elaborated in diagrams to a sufficient level of detail?	☐	☐	☐
Are detailed logic flow diagrams presented?	☐	☐	☐
If the solution is COTS-based, does the detailed design include documentation of all object models, application program interfaces, and frameworks exposed by the COTS package?	☐	☐	☐

Design Document	Yes	No	N/A
Does the internal communications design include the following as applicable? • WAN/LAN topology • Interconnections with the public internet • The number of servers and clients to be included on each area network • Format for data being exchanged between components • Information security specifications • Graphical representation of the connectivity between components	☐	☐	☐
Does the document present a physical data design?	☐	☐	☐
Are detailed data flow diagrams presented?	☐	☐	☐
Does the document present a detailed design of interfaces with external systems?	☐	☐	☐
Does the detailed design for external interfaces include data formatting specifications, formats for error reports exchanged between the systems, and query and response descriptions, as applicable?	☐	☐	☐
Are system integrity controls established?	☐	☐	☐
Are all IT Security features or issues addressed?	☐	☐	☐
Comments:			

Project Name

System Conversion Plan

Version X.X

Table of Contents

1 Conversion Overview

1.1 System Overview

Provide an overview of the system undergoing conversion including the processes the system is intended to support, type of data maintained, operational sources, and uses of data.

1.2 System Conversion Overview

1.2.1. Conversion Description

Describe the system structure and major components including parts of system to undergo conversion by phase, if applicable; Includes hardware, software, and data information as well as a milestone chart for the conversion process.

1.2.2. Type of Conversion

Describe the type of conversion effort (e.g., intra-language conversion, inter-language conversion, compiler conversion, or other).

1.2.3. Conversion Strategy

1.2.3.1. Hardware Conversion Strategy

Identify the strategy to be used for the conversion of system hardware, if any; describe the new (target) hardware environment, if appropriate.

1.2.3.2. Interfaces

Identify the affected interfaces and the revisions required in the case of a hardware platform conversion, such as mainframe to client/server.

1.2.3.3. Software Conversion Strategy

Identify the conversion strategy for software.

1.2.3.4. Data Conversion Strategy

Identify the data conversion strategy, data quality assurance, and data conversion controls.

1.2.3.5. Data Conversion Approach

Describe data preparation requirements and the data that must be available for system conversion; includes details of data handling, conversion, and loading procedures as well as characteristics of machine-readable media, as applicable.

1.2.3.6. Data Quality Assurance and Control

Describe the strategy to ensure data quality before and after all data conversions; include the approach to data scrubbing and quality assessment before it is moved to the new or converted system.

1.2.4. Conversion Tailoring Profile Level Factors

Identify project tailoring profile level factors that could affect the conversion feasibility, the technical performance of the converted system, the conversion schedule, or costs; include strategies for control or reduction.

1.3 Conversion Tasks

1.3.1. Conversion Planning

Identify conversion plans including analyses such as workload projections for the target environment; growth rate projections of data processing needs; identification of missing features in the target environment and mitigation strategies.

1.3.2. Pre-Conversion Tasks

Describe all tasks that must be completed before the initiation, development, or completion of the conversion effort (e.g., install changes to the system hardware, operating system, or other).

1.3.3. Major Tasks and Procedures

Provide a brief description of each major task required for the conversion of the system, tasks required to perform the conversion, preparation of data, and testing of the system. Include the procedural approach for each major task.

1.3.3.1. Major Task Name 1

Explain task and identify detailed procedures.

1.3.3.2. Major Task Name 2

Explain task and identify detailed procedures.

1.3.3.3. Major Task Name 1

Add additional tasks as needed.

1.4 Conversion Schedule

Provide a schedule of activities to be accomplished during conversion including pre conversion tasks and major tasks for all hardware/software, and data conversions.

1.5 Security

Provide an overview of security features and security procedures during conversion.

1.5.1. System Security Features

Provide an overview of the security features associated with the system when it is converted, e.g., changes in security features or performance resulting from conversion.

1.5.2. Security During Conversion

Identify security issues and procedures specifically related to the conversion effort.

1.6 Definitions

List and define specific terminology used in document.

2 Conversion Support

Identify and describe the support necessary to implement the system including hardware, software, or other aspects of the conversion effort.

2.1 Hardware

Identify all hardware required for the conversion.

2.2 Software

Identify software and databases required to support the conversion. Examples include automated data conversion tools, quality assurance and validation software, computer-aided software engineering tools, and documentation tools.

2.3 Facilities

Identify the physical facilities and accommodations required during the conversion period.

2.4 Materials

Identify any support materials needed to support the conversion effort.

2.5 Personnel

2.5.1. Personnel Requirements and Staffing

Identify the number of personnel, length of time needed, types of skills, and skill levels for the staff required during the conversion period.

2.5.2. Training of Conversion Staff

Identify training required to prepare the staff for system conversion (not operation). Include details such as the training curriculum and the proposed schedule.

Attachment A—<Other>

Add attachments (or appendices) as needed. These can include completed tailoring forms, descriptions of the development approach/methodology, management or technical processes to be followed, etc.

SDLC System Conversion Plan Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the System Conversion Plan. This checklist is recommended for use by authors and reviewers.			

System Conversion Plan	**Yes**	**No**	**N/A**
Have the system components to undergo conversion been identified?	☐	☐	☐
Has the type of conversion been defined and described?	☐	☐	☐
Has the conversion strategy been defined in detail for all hardware, software, and data conversion?	☐	☐	☐
Have the requirements for preparing the data for conversion been specified?	☐	☐	☐
Have quality assurance controls and data scrubbing procedures been specified for the data to be converted?	☐	☐	☐
Have aspects of the tailoring profile that may affect system conversion been identified?	☐	☐	☐
Have conversion planning and pre-conversion tasks been documented?	☐	☐	☐
Have the major conversion tasks been specified?	☐	☐	☐
Have procedures for performing each major conversion task been described?	☐	☐	☐
Has the schedule for converting the data been specified?	☐	☐	☐
Have security issues relating to the system conversion been identified?	☐	☐	☐
Has conversion support been planned, including hardware, software, facilities, materials, and personnel?	☐	☐	☐
Have personnel requirements, staffing, and training been identified for the conversion effort?	☐	☐	☐
Comments:			

Project Name

Training Plan

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Explain the purpose of the Training Plan.

1.2 Document References

Reference documents that preceded and provided information in developing this Training Plan.

1.3 Security and Privacy Act

If applicable, discuss the system security controls, e.g., Privacy Act information, notification of the Privacy Act civil and criminal penalties for unauthorized use and disclosure of system data.

2 Instructional Analysis

2.1 Development Approach

Describe the approach used to develop the course curriculum and methodology used to analyze training requirements per performance objectives. List training topics or subjects.

2.2 Issues and Recommendations

Identify issues and constraints that may affect training, as discovered during the instructional analysis. Document recommended solutions for overcoming issues and constraints.

2.3 Needs and Skills

Describe the target audiences for the courses to be developed and the training needs for each target audience. Briefly summarize the skills required to support and meet training objectives.

3 Instructional Methods

3.1 Training Methodology

Provide an overview of training methods to be used in the proposed courses in order to meet needs and increase skills identified previously. If applicable, discuss materials that will be produced to support the chosen training approach.

3.2 Training Data

If applicable, identify and discuss how training data will be managed. Identify if training databases will be created, and how they will be used during training.

3.3 Training Evaluation

Describe methods to be used to evaluate training effectiveness, student progress and performance. Identify how feedback will be collected, and then applied to modify or enhance the training approach, course materials, etc.

4 Training Resources

4.1 Course Administration

Identify methods used to administer the training program, including procedures for: class enrollment, student release, academic progress reporting, course completion and approval, training program monitoring, training records management, and security.

4.2 Resources and Facilities

Identify resources required by instructors and students for training, including: classroom(s), training and laboratory facilities, computer equipment, computer accessories, remote network access, etc.

4.3 Schedules

Provide an overview of tasks, deliverables, evaluation forms, scheduled versus actual milestones, and estimated efforts, such as the work plan.

4.4 Future Training

Discuss scheduled training modifications and improvements, course content updates, planned modifications to training environments, additional training, employee re-training, etc.

5 Training Curriculum

Provide a detailed curriculum by describing training course(s) and module(s). Include course/module name; objectives; target audience; duration; class size; content/syllabus. Provide references to training resources identified previously.

Attachment A—Acronyms and Abbreviations

Provide business terms peculiar to the system as well as the acronyms and abbreviations used in the document.

Attachment B—<Other>

Add attachments (or appendices) as needed. These can include source documents, such as technical papers, field surveys, or site studies.

SDLC Training Plan Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Training Plan. This checklist is recommended for use by authors and reviewers.			

Training Plan	**Yes**	**No**	**N/A**
Has the approach used to develop the training curriculum been described?	☐	☐	☐
Are recommendations provided for how to overcome issues or constraints identified during development of the training curriculum?	☐	☐	☐
Have the training needs of the target audience been described?	☐	☐	☐
Has the training methodology that will be used been described?	☐	☐	☐
Are procedures for managing training data identified and described?	☐	☐	☐
Have the training evaluation methods been described?	☐	☐	☐
Have training management and administration procedures been described?	☐	☐	☐
Have the required training resources been identified, including facilities, equipment, and materials?	☐	☐	☐
Has a proposed training schedule been established?	☐	☐	☐
Has an overview of future training been provided, to include updates, modifications, and enhancements to the training approach over time?	☐	☐	☐
Has the training curriculum been described?	☐	☐	☐
Have the objectives, target audiences, content, and other key components of each training course/module been identified?	☐	☐	☐

Comments:

Project Name

Version Description Document

Version X.X

Table of Contents

1 Introduction

All sections and subsections in the Version Description Document (VDD) template must be completed and ordered as presented in this template. Sections or subsections may not be deleted or reordered; if a section or subsection is not applicable, so state. Sub-subsections may be inserted within a subsection, as appropriate. If needed, additional subsections may be appended to a particular section.

1.1 Purpose

Explain the purpose of this VDD. The following text may be modified to suit.

This Version Description Document documents the product baseline. Thus, it represents the primary configuration control document used to track and control system versions that are released to the Production environment. Specifically, the VDD:

- Presents an overview of the system.
- Describes the system version released.
- Identifies all system changes since the previous VDD was issued.
- Specifies system dependencies and hardware requirements.
- Identifies system documentation.
- Inventories the materials released, software contents, software installation files, and the software source files.
- Presents instructions for installing the software.

After it is certified, the VDD becomes part of the production baseline (PBL).

1.2 Background

Provide a brief overview of the release. Reference the SDLC Governance Board meetings at which the system change requests (SCR) included in this release were certified.

1.3 Change Summary

Provide a brief summary of the principal changes included in the release. Do not reference specific SCRs in this section, as that information is included in Section 4.1.

1.4 Identify Stakeholders

Identify the stakeholders (points of contact) involved in the project, including the Program Manager, Project Manager, Customer Relationship Manager, and other key project personnel. For each individual, provide the name, organization, project role, and telephone number.

1.5 Document References

List the documents that are sources or references for this VDD. Include any project documents that preceded this VDD and provided information for its development.

2 Assumptions and Constraints

All sections and subsections in the Version Description Document (VDD) template must be completed and ordered as presented in this template. Sections or subsections may not be deleted or reordered; if a section or subsection is not applicable, so state. Sub-subsections may be inserted within a subsection, as appropriate. If needed, additional subsections may be appended to a particular section.

2.1 Assumptions

Identify the assumptions about future situations, beyond the control of this system development project, whose outcomes affect the development and operation of the new or modified system. Assumptions include:

- Availability of existing OCC ITS, contractor, and/or business unit resources
- Additional OCC ITS, contractor, and/or customer resources to be provided for this system development project
- Pending legislation
- Court decisions that have not yet been rendered
- Future trends in banking
- Developments in technology

2.2 Constraints

Identify the constraints imposed on the design, development, and operation of the new or modified system because of conditions beyond the control of this system development project. Constraints include:

- Government regulations
- Standards to which the system solution must adhere
- Strategic decisions
- Availability of existing OCC ITS, contractor, and/or business unit resources

3 System Overview

Provide a brief overview of the system.

3.1 Software Requirements

Identify any new or altered software requirements. Software requirements are preconditions on the target computer, such as a minimum operating system level or database connectivity clients (for example, Windows 2000 or MSSQL native client driver, etc.).

3.2 Hardware Requirements

Identify any new or altered system hardware requirements. Hardware requirements include items such as processor specifications, minimum processor speed, minimum RAM amounts, and peripherals.

4 Version Description

Identify the system and the release number.

4.1 System Change Requests Included in the Release

List the SCRs included in the release in the format presented below. For initial releases that do not yet include SCRs, list the requirements, identified by FRD identification number, to be included in the release.

SCR Number	Title	Priority

4.2 Inventory of Software Contents

Describe the software components of the release, including installation files for each target platform, source code, and database scripts. Provide a list of deleted files, as appropriate. Use a table to organize information.

Directory Structure and File Name	PVCS VM Revision Number (or date/time stamp)

4.2.1. Installation Files

For each target platform in the format presented below, provide a listing of application executable, system, and data files, along with their indicate directory structure locations. This information may be included in an attachment, if necessary.

4.2.2. Source Code Listing

Identify the application source code and library files that were used to compile the application executables. This information may be included in an attachment, if necessary. Use a table format, similar to the table depicted above, to present this information.

4.2.3. Database Scripts

Identify all database scripts, which should be executed against the current production database in order to upgrade it to match this software release. This information may be included in an attachment, if necessary. Use a table format, similar to the table depicted above, to present this information.

4.2.4. Deleted Files

Identify any files that were previously part of the system but are no longer needed as a result of this release. This information confirms that their absence will not affect system performance. These files should not be labeled in PVCS Version Manager. This information may be included in an attachment, if necessary. Use a table format, similar to the table depicted above, to present this information.

4.2.5. PVCS Version Manager Version Label

If applicable, identify the PVCS Version Manager version label that is assigned to the release components.

4.3 Reference Table Data

Identify any necessary reference table updates for the release to execute properly. A table containing valid abbreviations for the 50 states or valid status codes is an example of a reference table.

4.4 Related Documents

List any other documents that serve as documentation for the software release in the format presented below. Include user-oriented documentation, such as User Manuals or Quick Reference Guides. This information may be included in an attachment, if necessary.

Document Title	CM Number/ Date	Last Update	Comments

4.5 Installation Instructions

Explain how the release is to be installed. This information may be included in an attachment, if necessary. Include information on the resulting directory structure and any registry entries.

4.5.1. Installation Options

If applicable, provide information on the preconditions for software installation and instructions on what should occur if the preconditions are not present on the target computer. For example, if Release 2.1 of system X assumes that Release 2.0 of system X is already present, specify what should occur if Release 2.0 is not present. This information primarily applies to client/server systems that are loaded via InstallShield packaging.

4.6 Commercial Off-the-Shelf Software

Identify any new or altered commercial off-the-shelf (COTS) software that must be installed to support the release and the release version of each application. This information may be included in an attachment, if necessary.

4.7 Target Environments

Identify the target environment and any configuration settings for the release. If known, identify the workstation images for which the release

has been certified. This information may be included in an attachment, if necessary.

4.8 Distribution Method

If applicable, identify how the release will be delivered to the target environments (for example, CD-ROM or download from FTP site).

4.9 Possible Problems and Known Errors

List possible problems and known errors in the format presented below.

TPR Number	Problem/Change Title

5 Attachment A – Acronyms and Abbreviations

Provide business terms peculiar to the system as well as the acronyms and abbreviations used in the document.

6 Attachment B—<Other>

Add attachments (or appendices) as needed. These can include source documents, such as technical papers, field surveys, or site studies.

SDLC Version Description Document Checklist

Project Name:		**Version:**	

This checklist is provided as an aid to check the consistency and completeness of the Version Description Document. This checklist is intended for use by authors and reviewers.

Version Description Document	**Yes**	**No**	**N/A**
Has a brief background of the release and relevant changes been provided?	☐	☐	☐
Are relevant assumptions and constraints identified?	☐	☐	☐
Has a system overview that identifies new or altered requirements been provided?	☐	☐	☐
Has the applicable system version been identified?	☐	☐	☐
Has a description of the version to be released with this VDD been provided?	☐	☐	☐
Have all system changes since the previous VDD been identified?	☐	☐	☐
Has an inventory of the software contents been included?	☐	☐	☐
Has an inventory of the software installation files been included?	☐	☐	☐
Has an inventory of the software source files been included?	☐	☐	☐
Has an inventory of database scripts been included?	☐	☐	☐
Has an inventory of deleted files been included?	☐	☐	☐
Is the applicable PVCS Version Manager version label identified?	☐	☐	☐
Have necessary reference table updates been identified?	☐	☐	☐
Has the system documentation been identified?	☐	☐	☐
Have installation instructions been provided?	☐	☐	☐
Has any commercial off-the-shelf software required to support the release been identified?	☐	☐	☐
Are the target environments identified?	☐	☐	☐
Are the distribution methods identified?	☐	☐	☐
Have possible problems and known errors been listed?	☐	☐	☐

Comments:

Project Name

Implementation Plan

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Provide a brief statement that introduces the purpose of the Implementation Plan.

1.2 Scope

Define the scope of the Implementation Plan for this project, including the applicable system release.

1.3 Document References

Identify documents that supplement the Implementation Plan.

1.4 Acronyms

List acronyms and their descriptions that are used in this document.

1.5 Definitions

List and define specific terminology used in the document.

1.6 System Overview

Provide a brief overview of the system to be implemented.

2 Management Overview

2.1 Description of Implementation

Provide a brief description of the planned implementation approach.

2.1.1. Target Environments

Identify the target environment and any configuration settings for the release.

2.1.2. Distribution Method

If applicable, identify how the release will be delivered to the target environment.

2.2 Points of Contact

Identify the system owner, the name of the responsible organization(s), and titles and telephone numbers of the staff who serve as points of contact for the system implementation.

2.3 Major Tasks

2.3.1. Task Description

Describe the major tasks that are required to install hardware and software, prepare data, and verify proper completion of the implementation.

2.3.2. Implementation Schedule

Provide a project schedule for the tasks identified.

2.4 Security

2.4.1. Security during Implementation

Identify security issues related to the implementation effort, if applicable.

3 Implementation Support

3.1 Hardware

Provide a list of hardware required during implementation.

3.2 Software

Provide a list of software and databases required to support the implementation.

3.3 Telecommunications and Network Infrastructure

List all telecommunications and/or LAN facilities required for implementation.

3.4 Physical Facilities

Identify the physical facilities required during implementation.

3.5 Materials

Provide a list of additional materials required to support the implemetation.

3.6 Personnel

3.6.1. Personnel Requirements and Staffing

Describe the number of personnel, length of time needed, types of skills, and skill levels for the staff required during the implementation period.

If staff members have been selected or proposed for the implementation, identify their name and role in the implementation.

3.6.2. Training of Implementation Staff

Describe the training, if any, to prepare staff for implementing the system.

3.7 Performance Monitoring

Describe performance monitoring techniques (and tools, if applicable) that will be used to help decide if implementation is successful.

3.8 Configuration Management Interface

Describe the interactions required with the Configuration Management (CM) representative on CM-related issues.

4 Implementation Requirements by Site

Provide the name of the implementation site or sites in the following sub-sections.

4.1 [Site 1]

4.1.1. Site Requirements

Define the site-specific requirements that must be met for the orderly implementation of the system. Describe the hardware, software, and facilities requirements for this site.

4.1.2. Site Implementation Details

Describe the implementation team, schedule, procedures, database environment, or data update procedures for this site.

4.1.3. Site-Specific Installation Instructions

Describe any installation instructions specific to the site, if they vary from instructions provided previously.

4.1.4. Back-Out Plan

Provide the steps and actions required to restore the site to the original condition in the event of an unsuccessful implementation.

4.1.5. Post Implementation Verification

Describe the process for reviewing the implementation and deciding if the implementation was successful.

4.2 [Site n]

Repeat as necessary to describe specific implementation requirements and procedures.

Attachment A— <Other>

Add attachments (or appendices) as needed.

SDLC Implementation Plan Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Implementation Plan. This checklist is intended for use by authors and reviewers.			

Implementation Plan	**Yes**	**No**	**N/A**
Has the applicable system release been identified?	☐	☐	☐
Has a summary-level description of the implementation been provided?	☐	☐	☐
Have key points of contact for the implementation been identified?	☐	☐	☐
Have the major implementation tasks and schedule of tasks been provided?	☐	☐	☐
Have the system security features and security requirements for system deployment been described?	☐	☐	☐
Has the required implementation support been identified, including personnel, hardware, software, facilities, and materials?	☐	☐	☐
Have training needs and a training schedule been identified for support personnel?	☐	☐	☐
Have the deployment sites been identified?	☐	☐	☐
Has the required implementation support been identified, including personnel, hardware, software, facilities, and materials?	☐	☐	☐
Have detailed implementation requirements and procedures for each deployment site been provided?	☐	☐	☐
Do site-specific installation instructions provide enough detail to support implementation?	☐	☐	☐
Are back-out plans sufficient to ensure successful rollback in case installation is not successful?	☐	☐	☐
Are post-implementation verification procedures sufficient to ensure successful installation?	☐	☐	☐

Comments:

Project Name

Operations and Maintenance Manual

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Provide a brief statement that introduces the purpose of the Operations and Maintenance Manual. Identify the intended audience.

1.2 Scope

Define the scope of the manual. For example, the applicable system release version can be identified here.

1.3 Stakeholders

Identify primary points of contact for the system. List key personnel including business sponsors, program and project manager(s), development team members, and support personnel. Provide names, roles, organizations represented, and contact information.

1.4 Document References

Identify documents that supplement the Operations and Maintenance Manual. This may include requirements and design documentation, as well as applicable project management, configuration management, quality assurance, and test plans.

1.5 Glossary of Key Terms

List and define specific terminology that is used in this document and is applicable to the system. Include a listing of acronyms and their descriptions.

2 System Overview

2.1 System Description

Describe the system structure, major system components, and the functions of each major system component. Specify the type of data maintained and the operational sources and uses of the data. If possible, include charts, diagrams, and graphics.

2.2 System Environments

Identify all physical and/or virtual environments used in operating and maintaining the system and its interfaces. This may include sandbox, development, staging, test, and production environments. Explain how components within each environment interact.

2.2.1. Environment Name [Environment 1]

For each system and interface environment, identify equipment and infrastructure required to support system operations and maintenance. Provide details on computing hardware, peripherals, network infrastructure, and facilities, as applicable.

2.2.2. Environment Name [Environment n]

Provide descriptions for additional environments, as needed.

2.3 Site Profiles

Provide a description of each site applicable to system operations and maintenance. Identify both common and unique characteristics.

2.3.1. Site Name [Site 1]

For each site, identify equipment and infrastructure required to support system operations and maintenance.

2.3.2. Site Name [Site n]

Provide descriptions for additional sites, as needed.

2.4 Software Inventory

List all support software used for system operations and maintenance. This may include tools and technologies for development, testing, and performance monitoring. For each item, provide the current licensing model and number of users/CPUs supported.

2.5 Information Inventory

Provide details about the information produced or referenced by the system.

2.5.1. Resource Inventory

List all permanent files and databases that are referenced, created, or updated by the system. Provide an overview of the nature and content of each database used by the system.

2.5.2. Report Inventory

List all reports produced by the system. Identify report names and if applicable, software used to generate the report.

2.6 Processing Overview

At a high level, describe the processing functions of the system. Include system restrictions, waivers of operational standards, and interfaces with other systems.

2.7 Communications Overview

At a high level, describe the system communications functions and processes. If possible, use diagrams to show relevant wide area (WAN) and local area networks (LAN) as well as the layout of telecommunications equipment.

2.8 Security Overview

At a high level, describe the security considerations associated with the system. Reference applicable security documentation, as needed.

2.9 Privacy Act Warning

If the system handles sensitive or Privacy Act information, include a Privacy Act warning. In addition, include instructions on how to label system outputs accordingly.

3 Operational Overview

Provide a conceptual overview of how the system will be operated and maintained. Provide context for how the system owner, IT support organizations, and any relevant third parties will interact over the useful life of the system.

3.1 Organization

Describe the operation of the system by the use of a chart depicting operations and interrelationships.

3.2 Support Roles

Describe skills required to operate and maintain the system. This may include knowledge of specific versions of operating systems, programming languages, database management systems, test tools, etc. Identify roles and list key personnel.

3.2.1. Role Name [Role 1]

Name a specific role and describe key skills required for this role. Individual names do not need to be listed here. Provide references to sources where contact information for individual(s) who will serve in this role can be found.

3.2.2. Role Name [Role 2]

Repeat, as above, for all required roles.

4 System Operating Procedures

This section identifies the procedures necessary to operate the system. Provide a summary-level listing of all procedures, including daily, weekly, monthly, etc. routines. If available, attach detailed operating procedures in the appendix.

4.1 System Startup and Shutdown

Identify procedures for starting up and shutting down the system.

4.2 Administering User and Group Accounts

Identify and summarize procedures for administering the system user base.

4.2.1. Adding/Moving/Deleting Users

Describe procedures to add/move/delete user accounts, including user IDs and passwords.

4.2.2. Setting User Permissions

Describe procedures to give or restrict user access.

4.2.3. Adding/Deleting User Groups

Describe procedures to add/delete user groups.

4.3 Server Administration

Identify procedures for administering the system platform and servers.

4.3.1. Creating Directories

Describe procedures to create server directories.

4.3.2. Building Drive Mappings

Describe procedures to create server drive mappings.

4.4 System Backup Procedures

Identify procedures for conducting routine backups.

4.4.1. Backup Schedule

Describe backup schedules and procedures as applicable (e.g., daily, weekly, monthly, etc.).

4.4.2. Off-Site Storage

Describe the location, schedule, and procedures for off-site storage, if applicable.

4.5 Security Procedures

Identify procedures for administering system security controls. Reference applicable system security documentation, as needed.

4.5.1. Network Access and Confidentiality Procedures

Describe procedures for obtaining system identifications (ID) and passwords. Identify password update protocols and/or procedures.

4.6 End-User Support

Provide necessary end-user contact information and the procedures for providing end-user support.

4.6.1. User Request Handling Procedures

Describe procedures for addressing common user requests such as requesting access, issue reporting, etc. Identify templates for end-user request tickets, as applicable (attach in appendix as needed).

4.6.2. Escalation Procedures

Describe formal escalation procedures in response to priority user problems. Provide multi-level escalations based on type/scale of issue. Include escalation tree diagrams tied to operational roles.

4.7 System Audits and Documentation

Identify procedures and documentation required to support system audit activities. Reference Configuration Management procedures applicable to the project, as needed.

4.7.1. Monitoring Performance and System Activity

Describe procedures to monitor system usage, performance, and activity. Include all services being monitored, monitoring frequency, and thresholds to be observed.

4.7.2. Troubleshooting Issues

Describe procedures to conduct and document troubleshooting activities.

4.7.3. Maintaining Audit Records of System Operation

Describe procedures to monitor system audit trails. Identify system log files and exception reports that may be used. Identify data retention requirements and log purge procedures.

4.8 Inventory Management

4.8.1. Maintaining Hardware and Software Configuration

Describe procedures for maintaining configuration information for the installed hardware and software. Include a reference to the Configuration Management Plan, if applicable.

4.8.2. Installing Software/Hardware

Describe procedures for installing new or upgraded hardware and software. If installation instructions are provided in a separate build document, provide a reference here.

4.8.3. License Agreements

Describe licensing agreements and procedures for ensuring that all relevant software and hardware licenses are current.

4.8.4. Maintaining Lists of Serial Numbers

Describe procedures for maintaining all serial number lists required at a site.

4.8.5. Maintaining Property Inventory

Describe procedures for maintaining a property inventory at the site.

5 System and Software Maintenance Procedures

This section contains information on the procedures necessary to maintain the system and system software components.

5.1 Conventions

Describe rules, schemes, and conventions that should be used by maintenance personnel. This may include: labeling, tagging, and naming conventions; programming standards; commenting and annotation standards for software maintenance; etc.

5.2 Error Conditions

Describe all system-wide error conditions that may be encountered within the system. Identify the source(s) of each error and recommended methods to correct each error.

5.3 Maintenance Procedures

Provide detailed step-by-step procedures for all essential maintenance tasks. Include procedures for maintaining individual software components as well as the system platform (e.g., installing operating system updates and patches).

5.4 Verification Procedures

Describe procedures for system performance testing following modification or maintenance of components. This may include unit, integration, performance, regression, and user acceptance testing, among others. Reference existing test plans, if applicable.

5.5 Maintenance Reports

Describe procedures to create and update maintenance reports.

6 Description of Runs (mainframe systems only)

*** This section is applicable to mainframe systems only. If this section does not apply, delete this section. ***

6.1 Run Inventory

List applicable runs, identifying software components, job control batch file names, run jobs, and the purpose of each run if any portion of the system is run in batch mode.

If the system supports online, transaction-based processing, identify all software components that must be loaded for the system to be operational.

6.2 Run Sequence

Provide a schedule of acceptable phasing for system runs, by listing a logical series of operations. If the system is a batch system, provide the execution schedule.

6.3 Diagnostic Procedures

Describe the diagnostic or error-detection features of the system, the purpose of the diagnostic features and the setup and execution procedures for any software diagnostic procedures.

6.4 Error Messages

List error codes and messages with operator responses, as appropriate.

6.5 Run Descriptions

6.5.1. Primary User Contact

Identify the primary user contact and alternate for the system, including name, organization, physical address, e-mail address, and telephone number.

6.5.2. Control Inputs

Describe operator job control inputs (e.g, starting the run, selecting run execution options, activating an online or transactional-based system, and running the system through remote devices).

6.5.3. Data Inputs

If data input is required at production time, describe the responsibility for the source data, format of the data, data validation requirements, and disposition of input source and created data.

6.5.4. Output Reports

Identify report names, distribution requirements, and any identifying numbers expected to be output from the run.

6.5.5. Restart/Recovery Procedures

Provide instructions by which the operator can initiate restart or recovery procedures for the run.

6.5.6. Backup Procedures

Provide instructions by which the operator can initiate backup procedures.

6.5.7. Problem Reporting/Escalation Procedures

Provide instructions for reporting problems. Provide details for points of contact, including: names, office/mobile/home phone numbers, pager numbers, physical addresses, and e-mail addresses.

Appendix A— Standard Operating Procedures

Place detailed Standard Operating Procedures in the appendix, as needed. For example, attach detailed step-by-step procedures that supplement the procedures named and briefly described in the body of the document.

Appendix B — <Other>

Add additional appendices as needed.

SDLC Operations and Maintenance Manual Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Operations and Maintenance Manual. This checklist is intended for use by authors and reviewers.			

Operations and Maintenance Manual	**Yes**	**No**	**N/A**
Is the applicable system version identified?	☐	☐	☐
Is a high-level overview of the system architecture provided?	☐	☐	☐
Have all system environments covered by the manual been identified?	☐	☐	☐
Have site profiles for each system deployment site been provided?	☐	☐	☐
Has an inventory of all system software been included?	☐	☐	☐
Has an inventory of all permanent files and databases referenced, created, or updated by the system been included?	☐	☐	☐
Has an inventory of all reports produced by the system been included?	☐	☐	☐
Have system communications functions and process been described?	☐	☐	☐
Have system security considerations been described?	☐	☐	☐
If the system is covered by the Privacy Act, has a warning been included?	☐	☐	☐
Has an operational overview been provided, to describe the operations and maintenance organization(s) and role(s)?	☐	☐	☐
Are required skills for operations and maintenance roles identified?	☐	☐	☐
Are key operations and maintenance personnel identified?	☐	☐	☐
Have system operating procedures been described?	☐	☐	☐
Are system operating procedures described in sufficient detail to permit personnel to perform the required tasks?	☐	☐	☐
Are instructions for administering user accounts included?	☐	☐	☐
Are instructions for administering system servers included?	☐	☐	☐
Are instructions for conducting routine backups included?	☐	☐	☐
Are procedures for administering system security controls included?	☐	☐	☐
Are instructions for providing end-user support included?	☐	☐	☐
Are problem escalation procedures included?	☐	☐	☐
Are system audit procedures identified?	☐	☐	☐
Have system troubleshooting procedures been identified?	☐	☐	☐
Are inventory management procedures described?	☐	☐	☐
Have the procedures for maintaining the system and individual software units been	☐	☐	☐

described?			
Has an inventory of all runs, including software components, job control batch file names, run jobs, and run purpose been included?	☐	☐	☐
Has the sequence of runs been specified?	☐	☐	☐
Have system diagnostic procedures or error-detection features been identified?	☐	☐	☐
Have all error codes and messages with operator responses been identified?	☐	☐	☐
Have detailed descriptions for executing system runs been provided?	☐	☐	☐
Has contact information for the primary user been included?	☐	☐	☐
Have all operator job control inputs been specified?	☐	☐	☐
Have the data inputs been specified?	☐	☐	☐
Have the output report and distribution requirements been identified?	☐	☐	☐
Have the restart and recovery procedures been described?	☐	☐	☐
Have backup procedures been described?	☐	☐	☐
Comments:			

Project Name

User Manual

Version X.X

Table of Contents

1 Introduction

1.1 Purpose

Provide a brief statement that introduces the User Manual.

1.2 Scope

Define the scope of the User Manual for this project. For example, identify the relevant system release here.

1.3 Document References

Identify documents that supplement the User Manual.

1.4 Acronyms

List acronyms and their descriptions that are used in this document.

1.5 Definitions

List and define specific terminology used in the document.

2 System Capabilities

2.1 Overview

Describe the purpose of the system. Provide an overview of the system's capabilities, functions, and operation. Use graphics and tables, if appropriate.

2.2 Primary Business Functions

Discuss the business functions the system was designed to support. From the users' point of view, identify the primary responsibilities of system users.

2.3 System Users and Access Levels

Describe the users/user groups and restrictions placed on system accessiblity.

2.4 Privacy Act Considerations

Include a Privacy Act warning if the system is covered by the Privacy Act.

3 Operating Instructions

3.1 Getting an Account

Define the procedures necessary to obtain a user account, including user ID and password.

3.2 Logging In

Define the procedures necessary to access the system, once a User ID and password are assigned.

3.3 Changing the Password

Define the procedures for changing the password.

3.4 Exiting the System

Define the procedures to properly exit the system.

4 Description of System Functions

In this section identify and describe the system functions that end users will access during the normal course of business use. Use applicable screen shots to complement written descriptions.

4.1 Function Name [1]

Provide details for each system function. The description may include: the purpose of the function, initialization of the function, execution options

associated with this function, relationship to other functions, and summary of function operation.

4.1.1. Function Inputs

Define inputs required to perform the function.

4.1.2. Results

Describe expected results of the function.

4.2 Function Name [2]

Repeat as necessary to describe each function within the system.

5 Querying

5.1 Query Capabilities

Describe or illustrate the pre-programmed and ad hoc query capabilities provided by the system. Include query name or code the user would invoke to execute the query. Include query parameters if applicable.

5.2 Query Procedures

Describe the procedures necessary for file query including the parameters of the query and the sequenced control instructions to extract query requests from the database.

6 Reporting

In this section, provide instructions for executing and printing reports available in the system. Use screen shots or graphics, as available, to complement written descriptions.

6.1 Report Name [1]

Name and describe each report available to system users. Specify the purpose, frequency, and options for the report, and identify output

procedures, output formats, and the meaning of each field shown on the report.

6.2 Report Name [n]

Repeat as needed to describe each report available to the user.

7 Error Handling

Identify any error codes or messages that the user may be presented with when operating the system under normal circumstances. Describe the meaning of the error code or message and provide and explanation for how to correct the error.

8 User Support and Help Facilities

Provide contact information for end-user support. Identify any applicable help desk facility as well as telephone numbers, e-mail addresses, websites, etc. that the user can contact to resolve issues and problems.

Attachment A— <Other>

Add attachments (or appendices) as needed.

SDLC User Manual Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the User Manual. This checklist is intended for use by authors and reviewers.			

User Manual	**Yes**	**No**	**N/A**
Has the applicable system version been identified?	☐	☐	☐
Has a brief description of the system capabilities been provided?	☐	☐	☐
Have user groups and access levels been identified?	☐	☐	☐
If the system is covered by the Privacy Act, has a warning been included?	☐	☐	☐
Have instructions for obtaining a system account been provided?	☐	☐	☐
Have instructions for accessing the system been provided?	☐	☐	☐
Are all system functions identified?	☐	☐	☐
Have instructions for performing each system function been provided?	☐	☐	☐
Do instructions for each system function include inputs and expected outputs?	☐	☐	☐
Have querying capabilities been identified and described?	☐	☐	☐
Have reporting capabilities been identified and described?	☐	☐	☐
Have error messages been identified?	☐	☐	☐
Have instructions for resolving system errors been included?	☐	☐	☐
Have user support and system help facilities been identified?	☐	☐	☐

Comments:

<Project Name>

Disposition Plan

Version X.X

Table of Contents

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1 Introduction

1.1 Purpose

Briefly explain the purpose of this plan. Consider the following: The purpose of the Disposition Plan is to document the plans and results of system retirement activities and to ensure that information about the system can be accessed in the future.

1.2 Project and System Information

Provide key information such as project name, project code(s), system name, system acronym, CPIC Unique Project Name and Identifier, system purpose/function, year put in production, last year data was entered/changed, etc.

1.3 Scope

Specify the scope of the disposition effort. For example, the plan may cover disposition activities for the entire system or select components of the system.

1.4 Background

Provide any background relevant to the disposition of the system. This may include information about business, data, or technology requirements, among other things.

1.5 Points of Contact

Identify the stakeholders involved in the project. Identify relevant organizations, project roles, and responsibilities. For any individuals named, provide contact information. The table below provides an example.

Stakeholder Name	Organization	Project Role	Telephone Number
		Program Manager	
		Project Manager	
		Customer Relationship Manager	

2 Disposition Milestones and Schedule

2.1 Disposition Milestones

Identify the key disposition milestones.

2.2 Disposition Schedule

Based on the disposition milestones, chart a detailed schedule of activities. The disposition schedule may be provided as an attachment to the Disposition Plan.

3 System Disposition

3.1 Project Document References

Identify all available project life cycle artifacts and deliverables. Document final disposition of these artifacts when retirement is complete. Reference the configuration management repository, as applicable.

Document Title	Version	Controlled File Name & Location
Project Charter		O:\SDLC PROJECT DOCUMENT REPOSITORY\PROJECTS\MY PROJECT\PHASE I\System Concept of Operations.doc

3.2 Parallel Operations

If the system being retired is being replaced by a new system, provide information about the new system, the period of parallel operation, and other relevant information to summarize the concept of operations for parallel operations.

3.3 System Dependencies

If the system being retired shares data or interfaces with other system(s) still in operation, identify the degree of dependency between systems, examine impact, and propose a plan for continuing system function of the remaining system(s).

3.4 Communications Plan

Describe when and how stakeholders and system users will be contacted regarding system retirement. For example, organize key information in a table, as shown below.

Contact Name(s)	Project Role	Information Need	Communication Plan
	Records Management	Identify systems of record; revisit records retention plan; secure certification for data destruction and/or archiving	
	Legal Department	Identify statutory records or functional requirements (e.g., Privacy Act, Freedom of Information Act, statutory conformance, etc.)	
	ITS Technical Infrastructure		
	ITS Security		
	ITS Enterprise Architecture		
	System Project Team Members		
	CPIC Program Office		
	Application System Inventory Team		
	System Users		

3.5 Data Disposition

Describe the plan for archiving, deleting, or transferring to other systems the data files and related documentation.

3.6 Records Management

If data within the system has been classified as federal records, identify the applicable data/records, and describe a plan for satisfying the OCC Records Management policy governing data retention and disposition.

3.7 Software Disposition

Describe the plan for archiving, deleting, or transferring to other systems the software library files and related documentation. Provide a reference to documentation of component software, including OS information, platform version and vendor.

3.8 System Documentation Disposition

Describe the plan for archiving, deleting, or transferring to other systems the hardcopy and softcopy systems and user documentation for the system being retired.

3.9 Equipment Disposition

Describe the plan for archiving, deleting, or transferring to other systems the hardware and other equipment used by the system being retired.

3.10 Facilities Disposition

Document or provide a reference to documentation of any facility space used by the system and/or system support staff. Describe the plan for re-allocation or termination of usage of any facilities released.

3.11 Staff Reallocation

Document or provide reference to documentation of human resources released by retirement of the system, indicating whether they will be transferred to other projects.

4 Attachment A – Acronyms and Abbreviations

Identify and define business terms unique to the system, as well as the acronyms and abbreviations used in the document.

5 Attachment B – Disposition Report

A Disposition Report should be completed within six months after system disposition. The report should capture lessons learned from Disposition Phase activities and document where all system products are archived. Suggested content for the report follows.

5.1 Lessons Learned

5.1.1. Data Disposition

Describe results of data retirement and disposition activities. Explain any problems or mishaps that might have occurred during the phase and

recommendations for future data disposition activities. Identify any tips for successful data disposition.

5.1.2. Software Disposition

Describe results of software disposition activities. Explain any lessons learned from performing this task, identifying problems to avoid and any recommended methods to employ.

5.1.3. Hardware Disposition

Describe results of equipment disposition activities. Explain any lessons learned from performing this task, identifying problems to avoid and any recommended methods to employ.

5.2 Archiving

5.2.1. Data Archiving

Explain where any system data that has been archived is stored. If the old data was incorporated into a new system, name and describe the new system and location.

5.2.2. Software Archiving

Explain where any system software that has been archived is located. If licenses, subscriptions, and/or maintenance fees were eliminated or transferred, provide documentation detailing any arrangements made.

5.2.3. Hardware Archiving

Explain where archived system hardware is located. If equipment has been disposed of, provide the date of equipment disposition.

SDLC Disposition Plan Checklist			
Project Name:		**Version:**	
This checklist is provided as an aid to check the consistency and completeness of the Disposition Plan. This checklist is intended for use by authors and reviewers.			

Disposition Plan	**Yes**	**No**	**N/A**
Has the rationale for terminating the system been provided?	☐	☐	☐
Has a schedule for disposition activities and the archival of data, software, hardware, and documentation been specified?	☐	☐	☐
Has a communications plan for notifying all stakeholders and system users been specified?	☐	☐	☐
Have the plans for the archival or disposition of the system data been specified?	☐	☐	☐
Do the plans for data archival adhere to OCC Records Management policies?	☐	☐	☐
Have the plans for the archival or disposition of the system software been specified?	☐	☐	☐
Have the plans for the archival or disposition of the system hardware been specified?	☐	☐	☐
Have the plans for the archival or disposition of system documentation been specified?	☐	☐	☐
Have the plans for facilities disposition and staff reallocation been specified?	☐	☐	☐

Comments: